FISH & WILDLIFE DIVISION

Alberta Species at Risk

PROGRAM AND PROJECTS

2004-2008

Alberta

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2004-2008

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http://www.srd.gov.ab.ca/fishwildlife/speciesatrisk/default.aspx

OR contact:

Information Centre – Publications
Alberta Sustainable Resource Development
Main Floor, Great West Life Building
9920 - 108 Street
Edmonton, Alberta, Canada T5K 2M4
Telephone: (780) 944-0313 or 1-877-944-0313

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Barry Adams
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Erin Baird
Erin Baerwald
Andrea Barnes
Leslie Beattie
Gavin Berg
Matt Besko
Ron Bjorge
Dana Blouin
Francois Blouin
Rick Bonar
Cheryl Bradley
Steve Brechtel
Lowell Calder
Jenn Carlson
Oriano Castelli
Linda Cerney
Terry Clayton
Barry Cole
Rob Corrigan
Sue Cotterill
Gordon Court
Danielle Cross
Buck Cunningham
Medea Curteanu
DeVar Dahl
Leah Darling
Dan Davies
Craig DeMaere
Aaron Domes
Brad Downey
Brandy Downey
Leo Dube
Randy Dzenkiw
Lance Engley
Reg Ernst
Dale Eslinger
Kristen Fazaka
Rosemarie Ferjuc
Jan Ficht
Terry Forkheim
Andrew Forrest
Christine Found
Shannon Frank
Lynn Fraser
Rick Friesen
Laura Froggatt
Carla Froyman
Dennis Giggs
Tom Gilchrist
Tim Gillies
David Gummer
Robin Gutsell
Susan Hannon
Mark Heathcott
Nikki Heck
Mark Heckbert
Julie Heinrichs
Dave Hervieux
Margot Hervieux
Ed Hofman
Terry Hood
Chris Hugenholtz
Darryl Jarina
Elinor Jochum
Ed Johnson
Paul Jones
Kris Kendell
Kelley Kissner
Paul Knaga
Norbert Kondla
Martin Krippl
Brian Laing
Julie Landry-DeBoer
Chad Lyttle
Cal Macleod
Dug Major
Jeff Manchak
Sandy Marken
Amanda Martens
Gary Martin
Lisa Matthias
Matthew McBurney
Deanne Miskew
Bonnie Moffet
Kim Morton
Wayne Nelson
Joel Nicholson
Kristen Norris
Alena Parkinson
Cyndi Paszkowski
Dale Paton
Chantelle Pattenden
Rick Pattenden
Kim Pearson
Raymond Pearson
Brian Peers
Sue Peters
Ken Pitcher
Cindy Platt
Jim Potter
Dave Prescott
Eric Prescott
Ian Prescott
Jan Proctor
Richard Quinlan
Trevor Rhodes
Sandra Robertson
Kathryn Romanchuk
Selwyn Rose
David Ross
John Ross
Tanya Rushcall
Reg Russell
Tim Schowalter
Roy Schmelziesen
Nyree Sharp
Christy Sikina
Corey Skiftun
Brent Smith
Barry Snow
Brad Stelfox
Tara Stephens
Scott Stevens
Brad Taylor
Andrew Teucher
Arlen Todd
Al Violette
Drajs Vujnovic
Ksenija Vujnovic
Greg Wagner
Bob Ward
Michelle Wells
Lisa Wilkinson
Matthew Wilkinson
Kevin Wingert
Bill Wishart
Steve Wolfe
Hugh Wollis
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executive summary

The Alberta Species at Risk Program continued to evolve between 2004 and 2008, shaped by the increasing recovery and conservation needs of species at risk in the province, and by external considerations, including the federal *Species at Risk Act*.

While emphasis continues to be on recovery planning and implementation, multi-species and landscape-level initiatives increased in importance during this period. Although status assessment continues to be integral to program function, the focus on recovery represents a real need to identify and implement actions that will recover or maintain viable populations of at risk wildlife and plant species in Alberta. Since the beginning of the Species at Risk program, 15 recovery plans have been written, and recovery planning is underway for nine species. In addition, management plans for several Species of Special Concern are currently under development.

Involvement of affected and interested stakeholders has been integral to the success of the Species at Risk Program. Stakeholder participation in the past four years has been outstanding at the project level, on recovery teams, and with recovery activities. Engagement of stakeholders through direct participation, partner funding or in-kind support and through the Endangered Species Conservation Committee continues to be a key strength of the program.

The federal *Species at Risk Act* was proclaimed in June 2003, and by June 2004 all sections of the Act were in effect. The Act continues to influence the delivery of species at risk initiatives in Alberta, particularly those related to recovery. Alberta, in turn, has continued to influence the development of federal policies related to the interpretation and implementation of the act, and is committed to developing provincial recovery plans that meet both federal and provincial requirements.

This report highlights achievements of the Species at Risk Program from the 2004-2005 to 2007-2008 fiscal years. It includes 11 recovery planning updates, 15 Species at Risk project summaries, recovery implementation progress for 14 species, and a short description of other important initiatives that Species at Risk staff are undertaking.

Stonecat

Introduction

Alberta Species at Risk Program Overview

This report provides an overview of the projects and recovery efforts undertaken as part of the Species at Risk Program between April 2004 and March 2008. It is the fifth summary of the provincial Species at Risk Program. The Species at Risk Program is coordinated by the Fish and Wildlife Division, Alberta Sustainable Resource Development. As in previous years, it is only through the cooperative efforts of both individuals and non-governmental, provincial and federal agencies that the accomplishments of these past four years have been realized.

In the early years, the Species at Risk Program focused on inventory and monitoring projects, with recovery planning and implementation coming to the forefront during 2002-2003. Although the general status evaluations continue to assess new taxonomic groups and detailed status assessments identify new species at risk that enter into the recovery process, provincial recovery planning and implementation have emerged as more prominent components of the program, along with a new emphasis on multi-species and landscape-level approaches to species conservation.

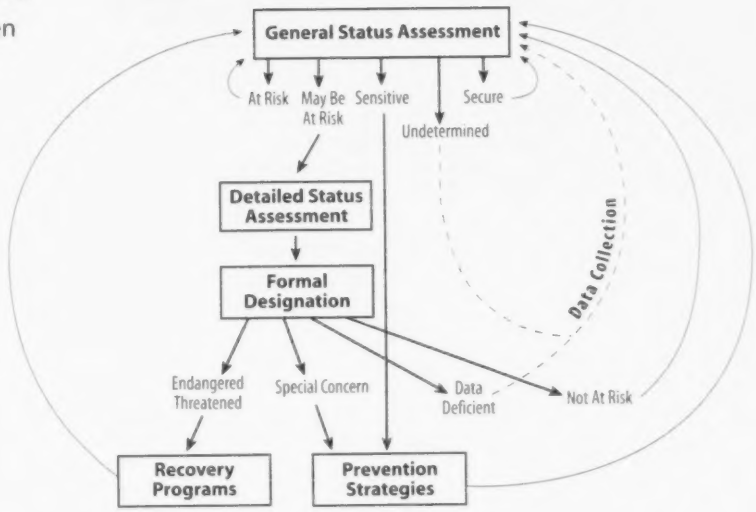
Program Framework

The Alberta Species at Risk Program is composed of five interrelated program areas:

1. General status assessment of all wild species.
2. Detailed status assessment of species, with a focus on those that may be at risk of extinction or extirpation in Alberta.
3. Formal designation of species as *Endangered* or *Threatened* (both legal designations under Alberta's *Wildlife Act*), Species of Special Concern, or Data Deficient.
4. Development and implementation of recovery programs for *Endangered* and *Threatened* species.
5. Development and implementation of strategies to prevent species from becoming at risk, including Species of Special Concern management plans.

These components work synergistically so that advancements in one area, for example general status determination, lead to the further development and refinement of the other components such as Detailed Status Assessment. Details on the five steps follow, and are illustrated in the accompanying figure.

FIGURE 1: Species at Risk Program Framework



1) General Status Assessment

The general status of wild species in Alberta is evaluated every five years. This process acts as a coarse filter, identifying those species that require more focused attention, either for protection or accurate evaluation. In 2005, preliminary status assessments were prepared for 2 811 species of birds, mammals, amphibians, reptiles, fish and three groups never before assessed: vascular plants,

bivalves and odonates. This greatly expanded the scope of the general status assessment process.

2) Detailed Status Assessment
Detailed status reports provide a comprehensive and current summary of a species status. They are prepared or updated for selected species that have received a general status of May Be at Risk, Sensitive or Undetermined. In rare circumstances, a species that has been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) but whose species' group has not yet been assessed by the general status assessment (e.g., moths), will receive a detailed status report. Using these detailed status reports and any additional pertinent information, an independent body of scientists, the Scientific Subcommittee (SSC) of the Endangered Species Conservation Committee (ESCC), completes a formal status assessment for the target species using criteria developed by The World Conservation Union (IUCN). The SSC then provides the ESCC with formal status evaluation and conservation recommendations.

3) Formal Designation
The ESCC is a broad stakeholder committee including scientists, government and corporate land managers, resource-based land users and conservation organizations. The committee reviews detailed status assessments and the ensuing scientific assessment of species status from the SSC. The ESCC then makes recommendations on legal designation, preparation of recovery plans, and conservation actions to the Minister of Sustainable Resource Development (the Minister), who has the final responsibility for legally designating species as *Endangered* or *Threatened*, and initiating recovery and conservation measures. Legal designation of birds, mammals, amphibians and reptiles as *Endangered* or *Threatened* under Alberta's *Wildlife Act* prohibits disturbance, killing, possession and trafficking of these species, and provides immediate protection for nests and dens. The *Wildlife Act* and associated *Wildlife Regulation* were modified in 1997 to enable the listing of fish, plants, invertebrates and fungi, as *Endangered* or *Threatened*. Four species of plants and five species of fish were designated as *Endangered* or *Threatened* in fall 2007 through listing in Schedule 6 of the *Wildlife Regulation*. However, the automatic prohibitions do not yet apply to the above-mentioned taxonomic groups, and appropriate regulations are under review. For wildlife species that do not meet the criteria for *Endangered* or *Threatened* listing, non-legal categories including Species of Special Concern, Data Deficient, and others have been created.

4) Recovery Programs
Following legal designation, recovery plans are required within one year for *Endangered* species and within two years for *Threatened* species. The focus of a recovery program may be on either recovery or maintenance of a species, depending on the particular circumstances leading to the species' listing. Ultimately, the intent of a recovery program is to improve the status of the species, ensure its long-term survival in the wild, and remove the species from the *Endangered/Threatened* species list. A recovery team, composed of a variety of stakeholders specific to the species and issues involved, is formed to develop a draft recovery plan as advice to the Minister on actions necessary to conserve the species and/or its habitat. This draft plan is submitted to the ESCC, who provide recommendations to the Minister on adoption of the plan. If the Minister approves the plan, it is adopted as the Provincial Recovery Plan. Teams also evaluate the progress of implementation of approved recovery plans.

5) Prevention Strategies
It is generally much more efficient and cost-effective to protect species before they become *Endangered*. Any species that has been formally designated as a Species of Special Concern or evaluated as Sensitive at the general status level is eligible for special management actions designed to prevent the species from becoming more at risk. A management plan may be used to outline key strategies in an effort to prevent up-listing to a more critical status in the future.

Program and Project Priorities

Four annual provincial Species at Risk Program budgets with a cumulative total of $1 237 500 were allocated to species at risk projects, SSC and ESCC operations, and recovery planning and implementation. Most salary and staff operational costs were covered from funds outside the Species at Risk Program. All project proposals were critically reviewed by Species at Risk staff and ranked using the following criteria: 1) the status of the target species; 2) existing commitments (e.g., ministerial priority, recovery planning and implementation, ongoing project requiring completion); and 3) the scope and impact of the proposed project (e.g., provincial vs. local scope; offering direct vs. indirect conservation benefits). Project prioritization also strived to ensure that progress would be made in all five program areas, from general status assessment to prevention, and that the program would be active in all parts of the province, with a focus in priority areas of the province.

Approximately $965 000 (78%) of the provincial Species at Risk Program budget was allocated directly to species at risk projects and recovery planning and implementation. The accompanying

three charts show the breakdown of these project funds by program area, risk category and taxon (species' groups).

FIGURE 2: Percentage of Program Funds Directed to Program Area

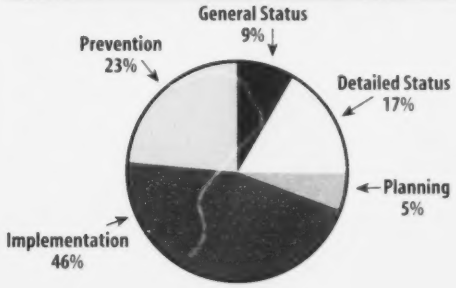


FIGURE 3: Percentage of Project Funds Directed to Risk Category

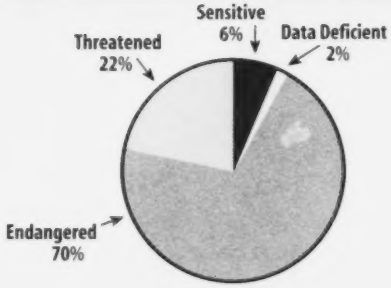
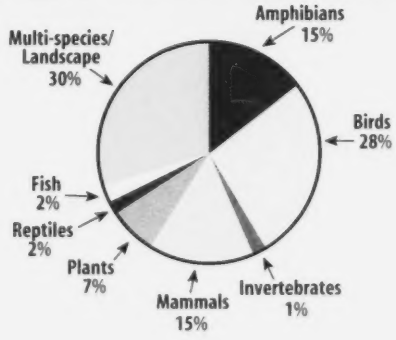


FIGURE 4: Percentage of Project Funds Directed to Species' Group

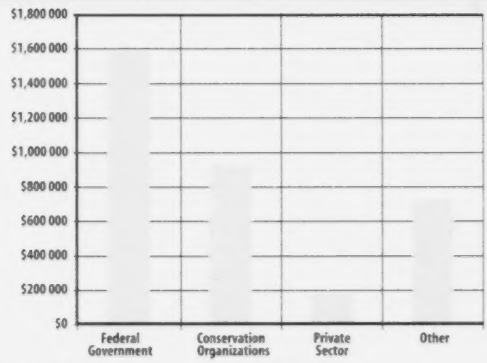


This report covers four fiscal years. During that period the Fish and Wildlife Division, Alberta Sustainable Resource Development, funded the following amounts to Species at Risk programs and projects:

- 2004-2005: $300 000
- 2005-2006: $350 000
- 2006-2007: $267 500
- 2007-2008: $320 000

Of the $965 000 in provincial funding that was allocated directly to species at risk projects and recovery efforts over the four years, 87% was directed to projects that the Fish and Wildlife Division coordinated or co-led with other organizations, such as the Alberta Conservation Association. Funding and in-kind support from outside sources played a significant role in the successful delivery of these initiatives. This support was received from a variety of sources including the private sector, conservation agencies, other provincial government agencies, and the federal government. Partner funding and in-kind support was valued at over $3 382 000, which was roughly three times the Species at Risk Program allocation in jointly led projects.

FIGURE 5: Four Year Compilation of Partner Funding Contributed to Species at Risk Projects[1] 2004-2008



[1] For projects led or co-led by the Fish and Wildlife Division

Significant Program Developments During 2004-2008

General status efforts in 2004-2008 included the assessment of three new taxonomic groups: vascular plants, bivalves and odonates, as well as the launching of the first web-based, searchable database of *The General Status of Alberta Wild Species 2005*. This interactive format can reach a much broader audience than the printed reports. Another benefit of this over the use of static reports is the ability to make changes to the species general status as new information becomes available in the interim of the five-year assessments.

Detailed status reports printed in 2004-2008 covered species from a broad range of taxa (species groups), including birds, fish, invertebrates, and plants. Fifteen new detailed status reports have been printed since 2004. The information in these reports was used in the detailed status evaluation process, which is integral to the operation of the SSC and ESCC.

The ESCC completed evaluations of 15 species potentially at risk in Alberta and forwarded its recommendations for these species to the Minister of Sustainable Resource

Development (included in Table 1, page 11). The addition of nine species of *Threatened* and *Endangered* plants and fish to the *Wildlife Regulation* in 2007 marked the first steps in obtaining protection for these taxa similar or equivalent to that currently provided to *Threatened* and *Endangered* birds, reptiles, mammals, and amphibians.

The third biennial report of the ESCC was completed and published in June 2004. The report was distributed to ESCC member organizations, provincial government offices, and various conservation organizations. The fourth biennial report of the ESCC was completed in March 2008. Other communication initiatives included enhancement of the Alberta Species at Risk website, documenting project progress through the Species at Risk Report series, posting completed Alberta Species at Risk Recovery Plans online, and publishing "At Home n the Range", a landholders guide for living with prairie Species at Risk. In addition, several species information brochures and MULTISAR Beneficial Management Practices were published.

Important developments were made in provincial recovery planning and implementation since 2004. The western blue flag was downlisted from *Threatened* to Species of Special Concern in 2005, a result, in part, to additional populations found during surveys conducted as part of its recovery plan. Recovery plans were completed for several more species including peregrine falcon, Ord's kangaroo rat, woodland caribou, burrowing owl, greater sage-grouse, northern leopard frog, western spiderwort, trumpeter swan, soapweed, yucca moth, swift fox, shortjaw cisco, and western silvery minnow. Recovery planning continues for tiny cryptanthe, ferruginous hawk, stonecat, and St. Mary sculpin. Implementation of the *Alberta Piping Plover Recovery Plan 2002-2004* was completed, and the plan was subsequently reviewed based on success of implementation strategies. Subsequently, a new plan, *Alberta Piping Plover Recovery Plan 2005-2010,* was produced. This represented the first plan in the Alberta Species at Risk Recovery Plan series to have been written, implemented, and reviewed, and to have had a new plan written to continue with recovery efforts.

Stakeholder participation has been vital to the working success of the provincial recovery teams. Conservation groups, industry, land users and managers, and provincial and federal agencies are generally involved in these cooperative and consultative initiatives.

In the prevention component of the Species at Risk Program, draft conservation management plans have been developed for three Species of Special Concern including Sprague's pipit, long-toed salamander and long-billed curlew, and for one Data Deficient species, the prairie rattlesnake. Management plans for bay-breasted warbler, black-throated green warbler, arctic grayling, white-winged scoter, and harlequin duck are in preparation.

Raising public awareness about the identity and needs of species at risk also played a key role in the prevention aspect of the program. One of the key methods to achieve this is direct contact with the public, and species at risk staff continued to make progress in this area through the program website, postcards, pamphlets, and presentations.

One of the biggest advances in the prevention field was implementation of the multi-species/landscape based programs such as MULTISAR. Because of its overwhelming success in the Milk River basin since 2002, and the recognition of the need for such a program elsewhere, this program was expanded to include the entire Grassland Natural Region in 2007. Other multi-species/landscapes programs include the Southern Headwaters at Risk Program (SHARP), and the Special Areas Habitat Stewardship Program. These initiatives are working toward conservation of multiple species at risk found within a particular landscape through voluntary stewardship actions with land users.

Provincial and National Program Integration

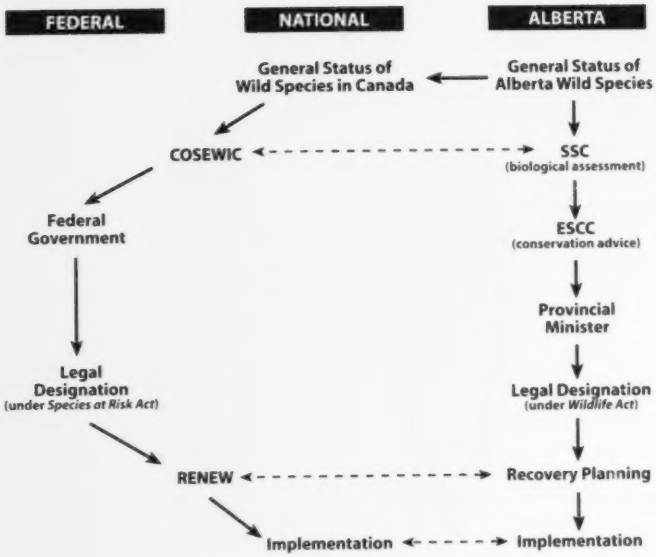
Alberta's approach to identifying and protecting species at risk is consistent with and parallels national efforts in Species at Risk management (Figure 6). Alberta has taken a leadership role in the development and implementation of a standard assessment protocol for the national general status system, which links directly to Alberta's general status assessment effort. This protocol consolidates the provincial and territorial status ranks of all wild species into national ranks at five-year intervals.

This consistency in approach continues at the detailed status assessment level. The SSC plays a role similar to that of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Both committees conduct biological assessments of species potentially at risk using criteria established by The World Conservation Union (IUCN).

The ESCC represents a unique and progressive component of Alberta's assessment process that is not found at the national level. By involving stakeholders at this stage of the legal designation process, the development of effective and viable management and recovery programs is enhanced.

Integration of provincial and national recovery planning is essential, given requirements under the federal *Species at Risk Act* (*SARA*). Where Alberta is the lead or co-lead jurisdiction for a federally listed *Endangered* or *Threatened* species (e.g., western silvery minnow), provincial recovery plans may be developed to satisfy both national and provincial requirements. Alberta also participates on national recovery teams for federally listed species that occur in the province.

FIGURE 6: Provincial and National Species at Risk Program Integration



Future Direction

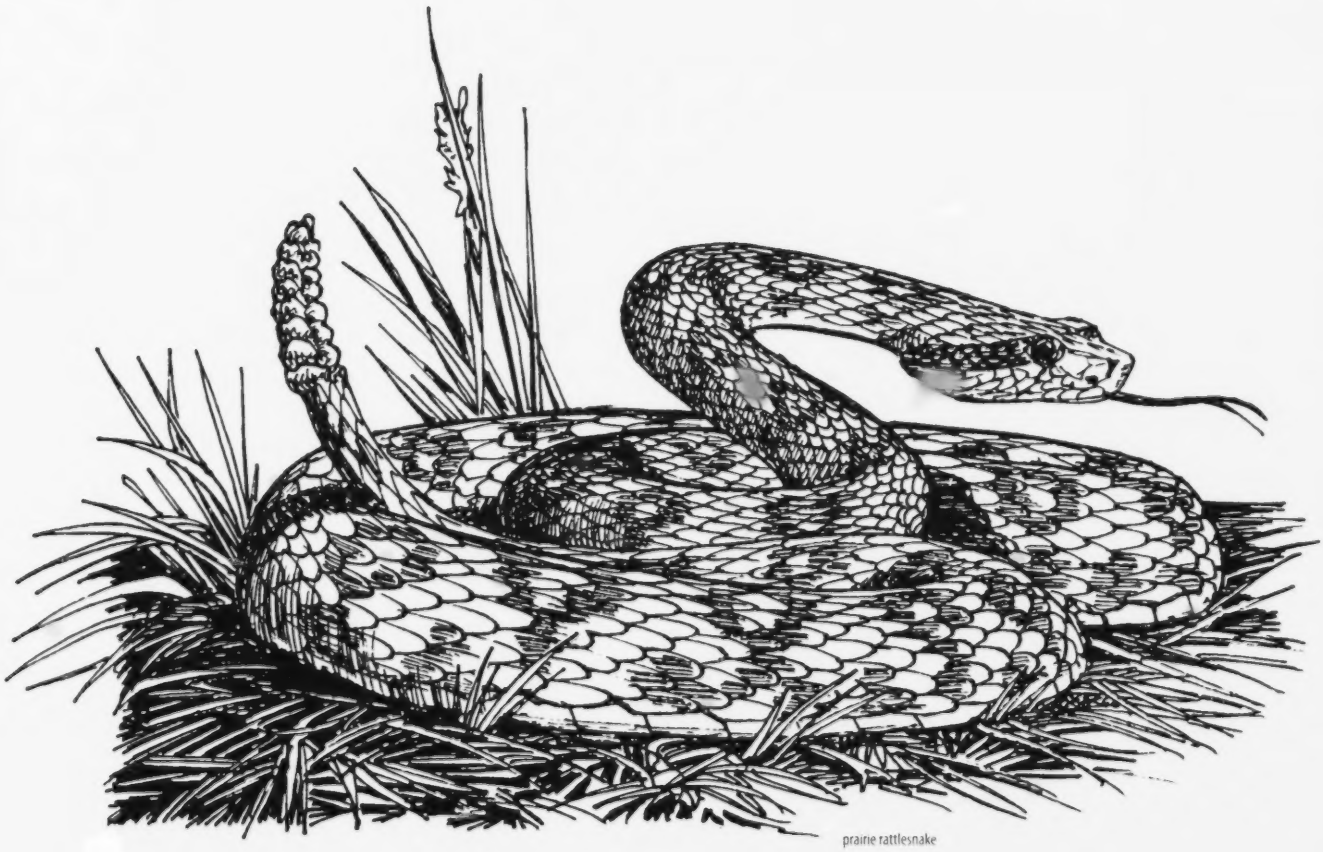
Fish and Wildlife Division staff and partners will continue to work together to create a progressive and responsive Species at Risk Program that includes strong stakeholder engagement. This will be critical for managing and conserving species and key habitats that occur on private and crown lands.

The next two years will see the completion of many species assessments in preparation for the publication of the report on the 2010 general status of Alberta wild species. The general status exercise will require the re-evaluation of all vertebrates, and initial work on new taxonomic groups will continue. Alberta will also continue to pursue policy and related actions that will enable the province to meet or exceed *Species at Risk Act* standards for areas of provincial jurisdiction.

Communication about the provincial Species at Risk Program to the public, non-governmental agencies and other provincial and federal departments will continue to be a priority. There will conintue to be opportunities for stakeholder involvement and participation in conservation of species at risk through implementation of approved recovery plans, stewardship initiatives, and other activities. As the number of species assessed under the provincial program increases, additional resources will need to be allocated toward recovery implementation.

In 1997, a *Strategy for the Management of Species at Risk in Alberta* was developed to focus the direction of the budding provincial Species at Risk program for the following 10 years. As this current Species at Risk Program report and previous versions before it demonstrate, many accomplishments and milestones have been made since then, and much has been learned as the program continues to evolve. As such, a consultant has been contracted to conduct a retrospective review of the Species at Risk Program. Recommendations stemming from that will be used in the preparation of an updated Strategy for the program, which will set out the direction of the Species at Risk Program over the next 5 years. This Strategy is expected to be completed in the 2008-2009 fiscal year.

For more information about the Species at Risk Program, visit the web site: http://srd.alberta.ca/fishwildlife/speciesatrisk/



prairie rattlesnake

list of contacts

Gordon Court
PROVINCIAL RESOURCE ASSESSMENT SPECIALIST
Fish and Wildlife Division, SRD
2nd Floor, Great West Life Bldg
9920-108 St
Edmonton, AB T5K 2M4

Phone | **780-422-9536**
E-mail | **Gord.Court@gov.ab.ca**

Brandy Downey
SPECIES AT RISK BIOLOGIST, PRAIRIES AND SOUTHERN MOUNTAINS
Fish and Wildlife Division, SRD
YPM Place
530 – 8 Street S
Lethbridge, AB T1J 2J8

Phone | **403-381-5526**
E-mail | **Brandy.Downey@gov.ab.ca**

Robin Gutsell
SPECIES AT RISK BIOLOGIST
Fish and Wildlife Division, SRD
2nd Floor, Great West Life Bldg
9920-108 St
Edmonton, AB T5K 2M4

Phone | **780-422-3412**
E-mail | **Robin.Gutsell@gov.ab.ca**

Joel Nicholson
SPECIES AT RISK BIOLOGIST, SOUTHEAST PRAIRIES
Fish and Wildlife Division, SRD
301 Provincial Bldg
346 – 3 Street SE
Medicine Hat, AB T1A 0G7

Phone | **403-528-5202**
E-mail | **Joel.Nicholson@gov.ab.ca**

Cindy Platt
SPECIES AT RISK BIOLOGIST
Fish and Wildlife Division, SRD
2nd Floor, Great West Life Bldg
9920-108 St
Edmonton, AB T5K 2M4

Phone | **780-644-8014**
E-mail | **Cindy.Platt@gov.ab.ca**

Dave Prescott
SPECIES AT RISK BIOLOGIST, PARKLAND
Fish and Wildlife Division, SRD
Suite 404, First Red Deer Place
4911-51 Street
Red Deer, AB T4N 6V4

Phone | **403-340-4309**
E-mail | **Dave.Prescott@gov.ab.ca**

Richard Quinlan
PROVINCIAL SPECIES AT RISK SPECIALIST
Fish and Wildlife Division, SRD
YPM Place
530 – 8 Street S
Lethbridge, AB T1J 2J8

Phone | **403-381-5397**
E-mail | **Richard.Quinlan@gov.ab.ca**

Arlen Todd
SPECIES AT RISK BIOLOGIST, PRAIRIES
EP Bldg, Suite 100
3115-12 Street NE
Calgary, AB T2E 7J2

Phone | **403-297-7349**
E-mail | **Arlen.Todd@gov.ab.ca**

Lisa Wilkinson
SPECIES AT RISK BIOLOGIST, FOOTHILLS
Fish and Wildlife Division, SRD
Provincial Bldg
#203, 111-54 Street
Edson, AB T7E 1T2

Phone | **780-723-8556**
E-mail | **Lisa.Wilkinson@gov.ab.ca**

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Government of Canada - Interdepartmental Recovery Fund
Grasslands Naturalists
Heritage Association of Cypress Hills
Highlands Pet Hospital, Lethbridge
Hinton Environmental Training Center
Human Resources Development Canada - Student Career Placement Program
Jacques Whitford AXYS Ltd.
Kananaskis Field Station
Lacombe County
Lethbridge Naturalists Society
Medicine Hat Fish and Game Club
Métis Association
Mikisew Cree First Nation
Mikisew Sport Fishing
Milk River Ranchers Association
Mountain Equipment Co-op
Nature Conservancy of Canada
Ol' MacDonald's Resort
Operation Grassland Community
Parks Canada
Petro-Canada
Pinhorn Grazing Association
Police Outpost Provincial Park
Prairie Farm Rehabilitation Association
Royal Alberta Museum
Runner's Soul, Lethbridge
Saskatchewan Environment and Resource Management
Science Horizons Internship Program
Shell Environmental Fund
Southern Alberta Environmental Group
Special Areas Board
TD Friends of the Environment Foundation
The Trumpeter Swan Society
The Wildlife Society - Alberta Chapter
Town of Magrath
Treaty 8 First Nations of Alberta
University of Alberta
University of Calgary
University of Lethbridge
Weldwood of Canada Ltd., Hinton Division
West Fraser Mills Ltd.
Western Stock Growers Association
Wood Buffalo National Park
Writing-on-Stone Provincial Park
Yellowstone to Yukon Conservation Initiative

Significant contributions were also received from numerous landowners and leaseholders, the ranching community, as well as the general public and private consultants.

THE GENERAL STATUS EVALUATION

Program Supervisor: **Gordon Court**

REGION:
Provincial

TARGET SPECIES:
At Risk/May Be at Risk/ Sensitive/Undetermined species

***WILDLIFE ACT* CATEGORY:**
All

PROVINCIAL GENERAL STATUS:
All

purpose

To provide the current status of a wide range of wild species in Alberta, as a first step in a continuing process of evaluating and reporting on the biological status of provincial wild species.

Background

In 1996, Alberta made a commitment to the national *Accord for the Protection of Species at Risk*. As part of this commitment, all Canadian provinces and territories are required to develop a wild species status report every five years. This led to the Fish and Wildlife Division's *General Status of Alberta Wild Species* report.

Alberta produced the first version of a wild species status report in 1991. A subsequent report was issued in 2000, which contained status information for 812 species. The most recent version, *The General Status of Alberta Wild Species 2005*, contains status assessments for 2,811 species.

Objectives

Alberta's general status process is designed to achieve four objectives:

- To provide information on, and raise awareness of, the current status of a wide range of wild species in Alberta;
- To stimulate broad public input in more clearly defining the status of individual species;
- To produce a list of candidate species for more detailed status evaluations; and
- To provide a reference for provincial government agencies in the development of wild species conservation and management programs.

Methods

The *General Status of Alberta Wild Species 2005* report was produced through a collaborative effort of the Fish and Wildlife Division, the Alberta Natural Heritage Information Centre, the academic research community, and many knowledgeable individuals (taxonomic experts, local and regional naturalists).

Assessments were based on the best available information on population sizes, distribution, trends, and threats. These assessments are repeated every five years to provide trend information on species' status over time. Such knowledge serves as an early detection system for the Government of Alberta, to allow informed decisions to protect and conserve those species in decline and in need of attention.

Each five-year report aims to incorporate new data for species previously assessed, and increase the number and variety of species assessed. Until 2000 the general status reports were printed in a hardcopy report format but in 2005 a searchable web interface was introduced.

Report Highlights

The General Status of Alberta Wild Species 2005 includes three groups never before assessed: vascular plants, bivalves and odonates.

Plants comprised the largest species group studied (1868 species), followed by birds (411 species), butterflies (163 species), gastropods (97 species), mammals (93 species), odonates (72 species), fish (61 species), bivalves (28 species), amphibians (10 species) and reptiles (8 species).

Summary results indicate that most (56%) of the 2529 Alberta wild species for which status could be determined are Secure throughout the province. Fewer than 13% are in risk categories: At Risk (about 1%) and May Be at Risk (12%). Of the remaining species assessed, 14% are considered Sensitive, and 17% are in categories including Accidental/vagrant, or Exotic/Alien. Across species groups, the proportion of Secure species is highly variable – ranging from a low of 0% for reptiles to a high of 63% for butterflies.

Freshwater fish have the highest proportion of Exotic species, those species that have been intentionally or accidentally introduced, accounting for 16% of species in total. Some of these exotic species have the potential to cause ecological disturbance in aquatic communities by affecting native fish, amphibian, and invertebrate species.

Future Direction

The next general status assessment will occur in 2010. It is anticipated that the 2010 version will be expanded to include tiger beetles and some non-vascular plants.

COOPERATING AGENCIES

Alberta Conservation Association

For more information contact:

Gordon Court (*see page 7*)

The General Status of Alberta Wild Species 2005 Online Report: www.albertawildspecies.ca

DETAILED STATUS REPORTS

Project Supervisors: **Sue Peters** (ACA), **Nyree Sharp** (ACA), **Robin Gutsell**, and **Lisa Matthias**

REGION:
Provincial

TARGET SPECIES:
Numerous

***WILDLIFE* ACT CATEGORIES:**
Endangered, *Threatened*, and non-game

PROVINCIAL GENERAL STATUS:
At Risk/May Be at Risk

purpose

To initiate and guide the completion of new detailed status reports, and to post recently published reports on the Fish and Wildlife Division website.

Background

Wild species in Alberta that May Be at Risk receive detailed status evaluations (see page 2). The Alberta Wildlife Status Report series builds on the general status exercise, and provides comprehensive summaries of the biological status of selected wildlife species in Alberta. These detailed status reports profile all current, relevant and available information for a species in a single document. They provide important information to the Endangered Species Conservation Committee (ESCC) and its Scientific Subcommittee to help them in recommending status and conservation actions for a species. They are also an important tool to Fish and Wildlife Division staff for implementing conservation initiatives.

Methods

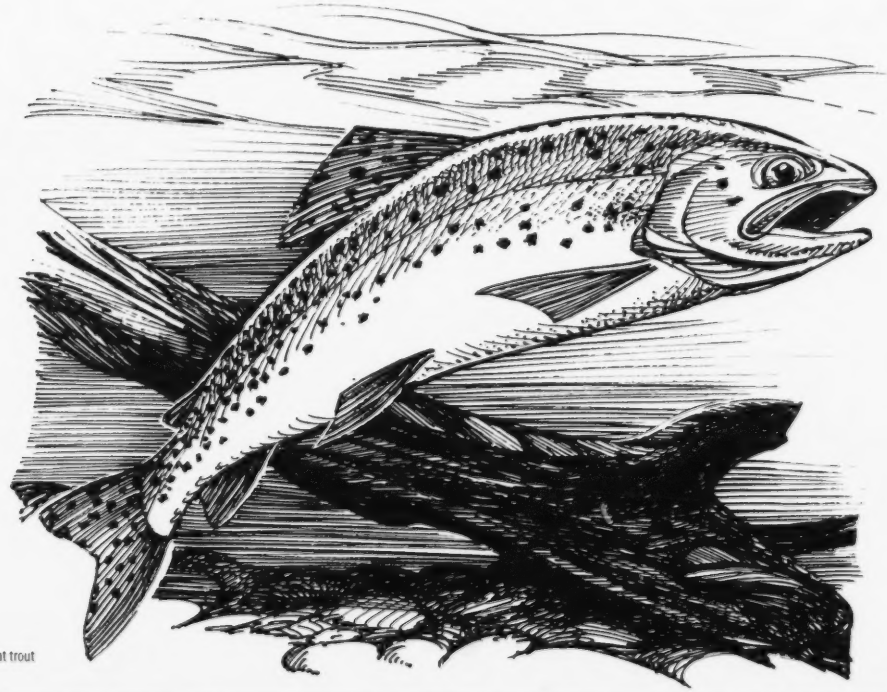
Qualified individuals were contracted to prepare reports. Each report was subjected to a review by species experts from outside the Fish and Wildlife Division.

Results

Eleven new reports were completed during the four fiscal years. These included reports for sage thrasher (*Oreoscoptes montanus*), arctic grayling (*Thymallus arcticus*), barred owl (*Strix varia*), tiny cryptanthe (*Cryptantha minima*), slender mouse-ear-cress (*Halimolobos virgata*), Weidemeyer's admiral (*Limenitis weidemeyerii*), Porsild's bryum (*Bryum porsildii*), western grebe (*Aechmophorus occidentalis*), westslope cutthroat trout (*Oncorhynchus clarkii lewisii*), limber pine (*Pinus flexilis*), and whitebark pine (*Pinus albicaulis*). Reports are underway for Athabasca rainbow trout (*Oncorhynchus mykiss*, western small-footed bat (*Myotis ciliolabrum*), woodland caribou (*Rangifer tarandus caribou*) update, Verna's flower moth (*Schinia verna*), northern long-eared bat (*Myotis septentrionalis*) and bull trout (*Salvelinus confluentus*). There are now a total of 63 detailed status reports published in the series.

Recommendation and Future Direction

Additional reports will be commissioned in the 2008-2009 fiscal year.



cutthroat trout

COOPERATING AGENCIES

Alberta Conservation Association

For more information contact:

Robin Gutsell (*see page 7*) or
Sue Peters
(Sue.Peters@ab-conservation.com)

Detailed Status Reports online:
http://srd.alberta.ca/fishwildlife/status/

FORMAL DESIGNATION OF SPECIES

Project Supervisors: **Gordon Court**, **Robin Gutsell** and **Lisa Matthias**

purpose

To provide formal recognition of a species' status in Alberta, so that necessary protections are afforded, and appropriate management actions are implemented.

REGION:
Provincial

TARGET SPECIES:
Numerous

***WILDLIFE ACT* CATEGORIES:**
Endangered, *Threatened*, Non-game and Birds of Prey

PROVINCIAL GENERAL STATUS:
At Risk, May be at Risk, Sensitive

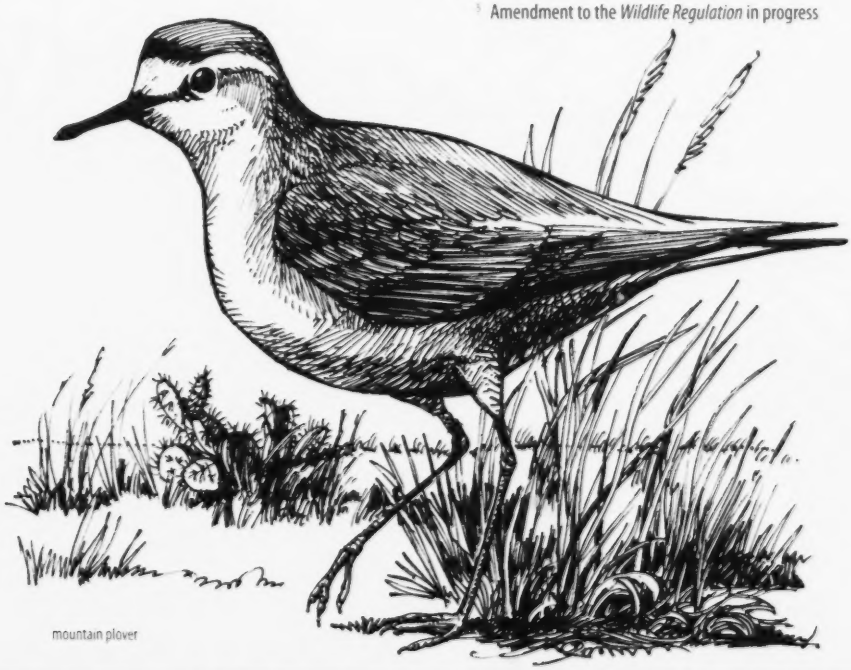
Results

Table 1 summarizes new species' designations as approved by the Minister of Sustainable Resource Development between April 2004 and March 2008. *Endangered* and *Threatened* species are designated in the *Wildlife Act*; Species of Special Concern and Data Deficient species are not legal designations in the *Wildlife Act*.

TABLE 1: New Species Designations Approved Between April 2004 and March 2008

Species	Date of Ministerial Approval	Status Recommendation[1]
Bison	June 2004	EN
St. Mary sculpin	June 2004	TH
Mountain plover	June 2004	EN
Banff springs snail	June 2004	EN
Stonecat	Sept 2004	TH
Tiny cryptanthe	Mar 2005	EN
Western blue flag	Dec 2005	SC[2]
Slender mouse-ear-cress	Dec 2005	DD
Barred owl	Dec 2005	SC
Arctic grayling	May 2006	SC
Short-horned lizard	May 2006	EN
Weidermeyer's admiral	May 2006	SC
Burrowing owl[3,4]	June 2006	EN
Western grebe	Jan 2007	SC
Ferruginous hawk[4]	May 2007	EN
Porsild's bryum	Dec 2007	EN
Westslope cutthroat trout[5]	Dec 2007	TH

[1] EN = *Endangered*; TH = *Threatened*; SC = Species of Special Concern; DD = Data Deficient
[2] Downlisted from *Threatened*
[3] Uplisted from *Threatened*
[4] Re-evaluation
[5] Amendment to the *Wildlife Regulation* in progress



mountain plover

For more information contact:

Robin Gutsell (*see page 7*)

Species listed under the *Wildlife Act* and new species assessed by the ESCC:
http://www.srd.alberta.ca/fishwildlife/escc/currentlylisted.aspx

prevention, conservation and stewardship projects

columbia spotted frog

RESEARCHING AMPHIBIAN NUMBERS IN ALBERTA (RANA)

Project Supervisors: **Lisa Wilkinson** and **Robin Gutsell**

purpose

To continue long-term monitoring of amphibian populations in the different biomes of the province, and to promote public education about amphibians and wetland conservation.

Background

The Researching Amphibian Numbers in Alberta (RANA) program was initiated in 1997 to begin long-term monitoring and raise public awareness about the importance of amphibians and wetland habitat. In 2004-2008, monitoring occurred at six sites: Saskatoon Island Provincial Park, Lesser Slave Lake Provincial Park, Meanook Biological Field Station, Athabasca Valley (Hinton area), Bow Valley (Kananaskis area), and Cypress Hills Provincial Park, although monitoring was limited at several sites in years with less funding. A new survey area in southeastern Alberta, representing the Grassland Natural Region, was added to the RANA program in 2005.

Methods

Pitfall trapping occurred at one primary monitoring pond per site (except the Grassland site); captured amphibians were identified to species, then aged, measured, weighed, and released. Further, a number of ponds within each RANA area were visually surveyed for evidence of breeding amphibians (e.g., eggs or larvae). In the Grassland region, road transects were used to listen for calling amphibians. Road transects targeted Great Plains toad and plains spadefoot, both of which only breed during high precipitation events. Education initiatives included school talks and activities, interpretative talks and guided hikes at parks, newspaper articles, and displays.

Results

Long-toed salamanders, wood frogs, boreal toads, boreal chorus frogs, northern leopard frogs, tiger salamanders, and Columbia spotted frogs were captured in pitfall traps. Visual pond surveys detected all of the above except tiger salamanders. Wood frogs were generally the most common species. Amphibian species diversity was highest at ponds in the Athabasca and Bow valleys. There was a notable absence of Canadian toad observations. The road transects detected boreal chorus frogs and plains spadefoot.

Frequent fluctuations in capture rates and presence at ponds for all amphibian species over the course of the RANA program have made it difficult to determine trends. Thus far, it appears that northern leopard frogs in the Cypress Hills, as well as wood frogs, boreal chorus frogs and boreal toads, are relatively stable, and long-toed salamander populations have slightly declined. There are insufficient data to comment on the other species. Caution must be used when interpreting these data as they represent general trends based on limited monitoring periods. Long-term monitoring is required to understand population trends.

Educational activities reached one thousand to several thousand people each year.

In 2005, a workshop arranged by the G8 Legacy Chair in Wildlife Ecology, University of Calgary, was held in Kananaskis and taught 16 volunteers about local amphibians and how to conduct surveys.

Recommendations and Future Direction

Amphibian populations fluctuate and are affected by environmental conditions; therefore, long-term monitoring is required to detect population trends. Continued monitoring at the the RANA sites for which continuous data have been collected is recommended, with increased effort to conduct surveys for the Canadian toad in central Alberta. Education activities should also continue, emphasizing the important role of amphibians and wetlands.

REGION:
Provincial

TARGET SPECIES:
Canadian Toad (*Bufo hemiophrys*), Columbia Spotted Frog (*Rana luteiventris*), Great Plains Toad (*Bufo cognatus*), Long-toed Salamander (*Ambystoma macrodactylum*), Northern Leopard Frog (*Rana pipiens*), Plains Spadefoot (*Spea bombifrons*), Western Toad (*Bufo boreas*), Boreal Chorus Frog (*Pseudacris maculata*), Tiger Salamander (*Ambystoma tigrinum*), Wood Frog (*Rana sylvatica*)

***WILDLIFE ACT* CATEGORIES:**
Threatened, Non-game, and Non-licence

PROVINCIAL GENERAL STATUS:
At Risk, May Be at Risk, Sensitive, and Secure

COOPERATING AGENCIES

Alberta Conservation Association, Alberta Tourism, Parks and Recreation, Heritage Association of Cypress Hills, Hinton Wood Products (a division of West Fraser Mills Ltd.) Human Resources Development Canada—Student Career Placement Program, Kananaskis Field Station, University of Alberta, and University of Calgary G8 Legacy Chair in Wildlife Ecology

For more information contact:

Lisa Wilkinson or **Robin Gutsell** (*see page 7*).

Related Species at Risk reports: No.74, 83, 95, 110

MAGRATH NORTHERN LEOPARD FROG REINTRODUCTION PROJECT

Project Supervisor: **Richard Quinlan**

REGION:
Prairies

TARGET SPECIES:
Northern Leopard Frog (*Rana pipiens*)

***WILDLIFE ACT* CATEGORY:**
Threatened

PROVINCIAL GENERAL STATUS:
At Risk

purpose

To re-establish a breeding population of northern leopard frogs in formerly occupied native habitat in the area of Magrath, Alberta.

Background

Northern leopard frogs were once abundant in Magrath natural areas around Pothole Creek, but vanished in the 1970s. The northern leopard frog reintroduction project in Magrath pre-dated the establishment of a provincial recovery team. It was set in motion by two local residents, Buck Cunningham and DeVar Dahl, who requested that Fish and Wildlife Division reintroduce northern leopard frogs into historic native habitat in the area.

Methods

Water quality and late-winter dissolved oxygen testing was done to prioritize reintroduction ponds in the Magrath area, resulting in selection of one pond for egg rearing and release of tadpoles. Egg masses were collected in three subsequent years from three different source ponds and creeks, two within the South Saskatchewan River Basin (near Medicine Hat), and one from a nearby location within the Milk River Basin. They were transported and introduced into rearing sites near Magrath, where they were placed in floating aquatic predator exclosures for the duration of the rearing period. The development of egg masses was monitored until hatchlings had developed into mobile tadpoles, at which time the tadpoles were counted and released directly into suitable habitat. Post-release monitoring was done by walking transects within a pre-defined study area from late July to early October. Local news releases were issued before and during the project, to keep residents informed. Ongoing communication was maintained with the two Magrath residents who had requested the initiation of this project.

Results

Northern leopard frog egg mass transplants were completed in 2003, 2004 and 2005. A total of 8 502 tadpoles were released over the three years in a pond known locally as Dudley's Pond. Successful overwintering and emergence of northern leopard frogs has been documented each year since 2003. Frogs have dispersed to nearby Pothole Creek, where further dispersal has been documented up to 10 kilometres downstream and several kilometres upstream along the creek and associated wetlands.

Recommendations and Future Direction

The Magrath Northern Leopard Frog Project was established as a pilot project to assess the effectiveness of local transplants using small-scale, on-site rearing of eggs. Direct monitoring associated with the project was completed in 2006, but infrequent monitoring has continued to document annual overwintering, reproduction, and dispersal. Some of the techniques used in the Magrath reintroduction project have been further adapted for use in the province-wide reintroduction program.

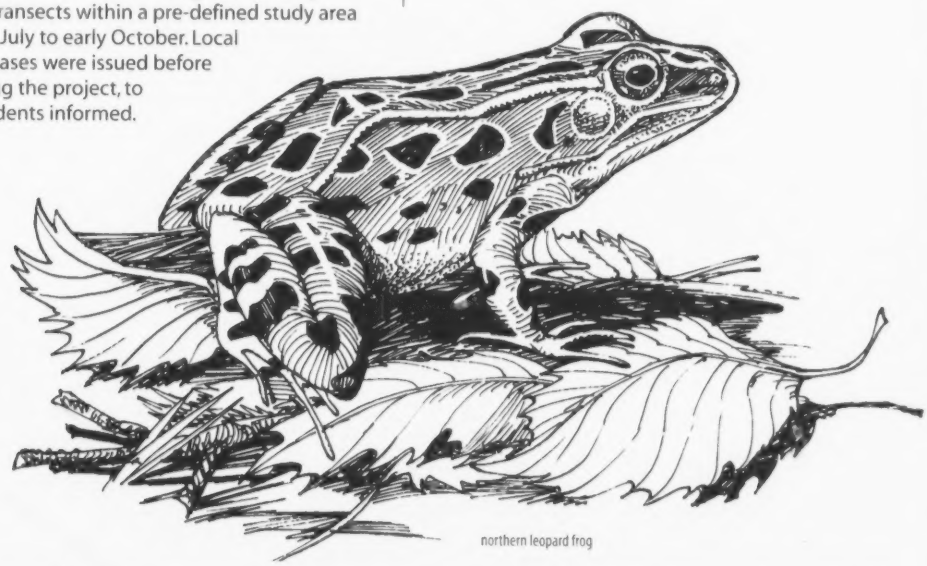
COOPERATING AGENCIES

Town of Magrath, Landowners Buck Cunningham and DeVar Dahl

For more information contact:

Richard Quinlan (*see page 7*)

Related Species at Risk report: No. 104



northern leopard frog

PRAIRIE RATTLESNAKE RESEARCH AND CONSERVATION PROJECTS

Project Supervisor: **Joel Nicholson**

REGION:
Prairies

TARGET SPECIES:
Prairie Rattlesnake (*Crotalus viridis viridis*)

***WILDLIFE ACT* CATEGORY:**
Non-game

PROVINCIAL GENERAL STATUS:
May Be at Risk

Purpose

To pursue a better understanding of the population size, structure, and reproductive characteristics of prairie rattlesnakes in Alberta, and to assess the effects of industrial development, urbanization, and agriculture on this species.

Background

The prairie rattlesnake is found throughout much of western North America. In Alberta, this species is primarily distributed along major river drainages in the southeastern portion of the province. Historically, the prairie rattlesnake was found as far north as Trochu, and as far west as Calgary. The range has apparently contracted toward the east and south since that time, but seems to have stabilized.

The prairie rattlesnake is at the northern edge of its North American range in Alberta, and the availability of suitable overwintering hibernacula is likely a major factor limiting abundance and distribution. This species has a low reproductive rate, and as such would be slow to recover from population declines.

Current threats to this species include the loss of native grassland habitat, mortality associated with intentional killings, agricultural activity, industrial development, urbanization, and most of all, road mortality.

Methods

Several projects aimed at better understanding prairie rattlesnakes in Alberta have been undertaken in recent years. These have included:

- Radio telemetry studies using surgically implanted radio transmitters. An M.Sc. student from the University of Calgary tracked rattlesnakes to assess habitat use, mortality, and reproductive frequency.
- A mark-recapture study at a large hibernaculum to assess the population at this well-known den site. Microchips were used to mark snakes in order to identify individuals.
- The provincial Snake Road Kill Monitoring Program continues to collect locations of snake mortality from observers across the province.

Results

Radio telemetry research is ongoing, however some results can be found in the Alberta Species at Risk Program Report No. 103.

Mark-recapture activities have resulted in the confirmation of a large and apparently healthy population of prairie rattlesnakes at one den site on the Red Deer River drainage. Population estimates at the site exceeded 1000 individuals.

The Road Kill Monitoring Program continues to receive numerous locations of snake mortality from various areas across the province. Data have been used to determine appropriate locations for signs at mortality hot spots that remind drivers to watch for snakes on the roads.

Recommendations and Future Direction

Recommendations coming out of this project are as follows:

1) Continue assessment of prairie rattlesnake populations as opportunities and funding allow, using mark-recapture, den monitoring, and other available tools.
2) Continue collecting data on road mortality of prairie rattlesnake across southern Alberta through the provincial Road Kill Monitoring Program.
3) Pursue research to adequately assess the risk to snakes across the landscape related to vehicle-induced mortality.
4) Pursue initiatives aimed at locating unknown overwintering dens and place protective notations on crown lands to ensure protection of these critical sites.

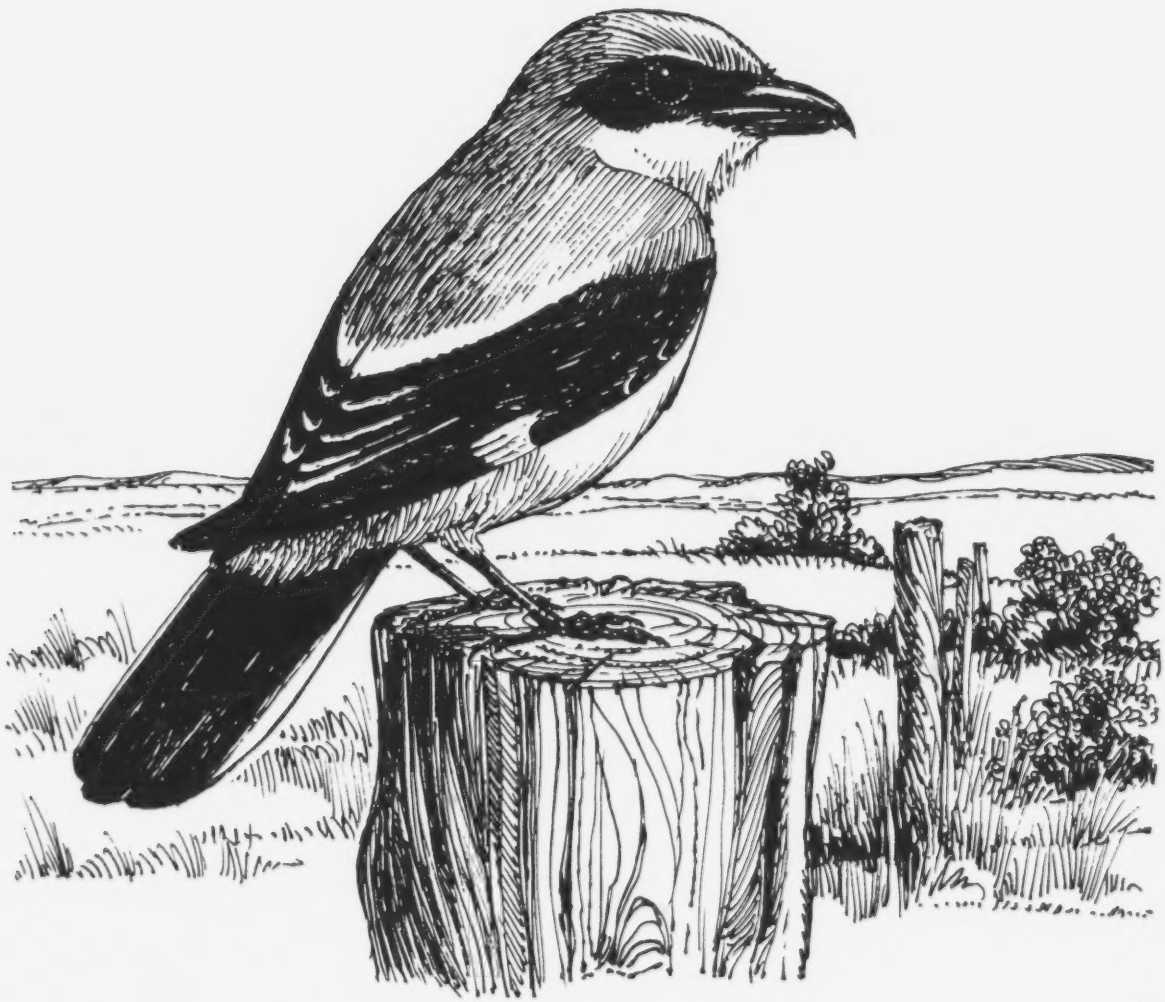
COOPERATING AGENCIES

Alberta Conservation Association, Alberta Sport, Recreation, Parks and Wildlife Foundation, Petro-Canada, University of Calgary, Local ranchers

For more information contact:

Joel Nicholson (*see page 7*)

Related Species at Risk reports: No. 81, 103, 109



loggerhead shrike

FERRUGINOUS HAWK DESIGN PROTOCOL AND INVENTORY

Project Supervisors: **Brandy Downey** and **Richard Quinlan**

REGION:
Prairies

TARGET SPECIES:
Ferruginous Hawk (*Buteo Regalis*)

***WILDLIFE ACT* CATEGORY:**
Endangered

PROVINCIAL GENERAL STATUS:
At Risk

Purpose

To standardize an inventory protocol to ensure that meaningful comparisons of ferruginous hawk populations can be made across years.

Background

The provincial ferruginous hawk inventory was initiated in 1982 by Dr. Josef Schmutz. Inventories were carried out for the species every five years (1982, 1987, 1992). In 2000 the Fish and Wildlife Division took over responsibility for these surveys. At that time the species was designated as *Threatened* under Alberta's *Wildlife Act*, and had recently (1998) been down-listed to a Species of Special Concern federally. The inventory completed in 2000 showed a significant population decline; however, the confidence intervals for the population estimate were extremely high. As a result, a re-evaluation of the survey protocol was initiated in 2003 (Taylor 2003) and the inventory was completed again in 2005.

Methods

Based on the information available and the logistical constraints of the project, Taylor (2003) suggested four major changes to the existing inventory protocol:

1) increase the number of quadrats from 87 to 150;
2) stratify the quadrats based on available habitat;
3) complete annual trend monitoring of a subsample of quadrats to determine trends between inventory years; and
4) complete Richardson's ground squirrel surveys on 30 ferruginous hawk quadrats to determine predator/prey relationship.

In 2005 a second review of the survey protocol was carried out (Saunders 2005), which elaborated on the Taylor (2003) recommendations. These included the following changes:

1) increase the number of survey quadrats;
2) stratify the quadrats into two strata (< 50% and >50% native prairie habitat) with 60% of surveys occurring in the >50% native prairie habitat or "high" strata; and
3) decrease the project area to the 1987-1992 areas.

In 2005 the ferruginous hawk inventory was carried out on 150 quadrats in the core area of the Grassland Natural Region. The recommendations made by Taylor and Saunders were adopted by the Fish and Wildlife Division. In addition to the 2005 inventory, subsamples of 30 quadrats were sampled in 2003, 2004, 2006, and 2007. In each of these 30 quadrats, Richardson's ground squirrel surveys were completed in April of each survey year (Downey 2003).

Results

The 2005 inventory showed a drastic population decline since 1992. The population was estimated at 618+/- 162 ferruginous hawk pairs in the Grassland Natural Region of Alberta. The trend surveys carried out in 2003, 2004, 2005, 2006, 2007 showed that the population has stabilized, suggesting that the decline took place sometime between 1992 and 2000. Because of the new information from the 2005 inventory, the ferruginous hawk was re-evaluated by the Endangered Species Conservation Committee and the species was legislated *Endangered* under Alberta's *Wildlife Act* in November 2006. A recovery plan is currently in development (see page 38).

In addition, the Richardson's ground squirrel transects illustrated a significant predator/prey relationship with the ferruginous hawk. The data from these surveys are currently being analyzed by the Alberta Conservation Association.

Recommendations and Future Direction

The provincial ferruginous hawk inventory should be completed again in 2010 to determine population changes since 2005. Annual trend monitoring surveys should be continued by Fish and Wildlife Division in order to measure the population trend between inventory years. The Richardson's ground squirrel data collection through the joint partnership between Fish and Wildlife and the Alberta Conservation Association should be continued.

COOPERATING AGENCIES

Alberta Conservation Association

For more information contact:

Brandy Downey (*see page 7*)

Related Species at Risk reports: No. 52, 69, 70, 101

WESTERN GREBES OF CENTRAL ALBERTA – SURVEYS AND MANAGEMENT CONCERNS

Project Supervisor: **Hugh Wollis**

REGION:
Woodlands, Lac La Biche

TARGET SPECIES:
Western Grebe (*Aechmophorus occidentalis*)

***WILDLIFE ACT* CATEGORY:**
Non-game

PROVINCIAL GENERAL STATUS:
Sensitive

purpose

To gather data on western grebes to help assess their status and provide direction for conservation and management.

Background

This project was initiated in 2001 to monitor population trends and distribution of the colonial nesting western grebes (*Aechmophorus occidentalis*) in Alberta. Western grebes are currently listed as a Species of Special Concern but until this project, no comprehensive gathering of data for Alberta had been done. The study began in the Stony Plain Area and, over seven years, has expanded to include areas of Alberta where western grebes have been known to occur, primarily in the north-central portion of Alberta from Utikuma Lake to Cold Lake to Buffalo Lake.

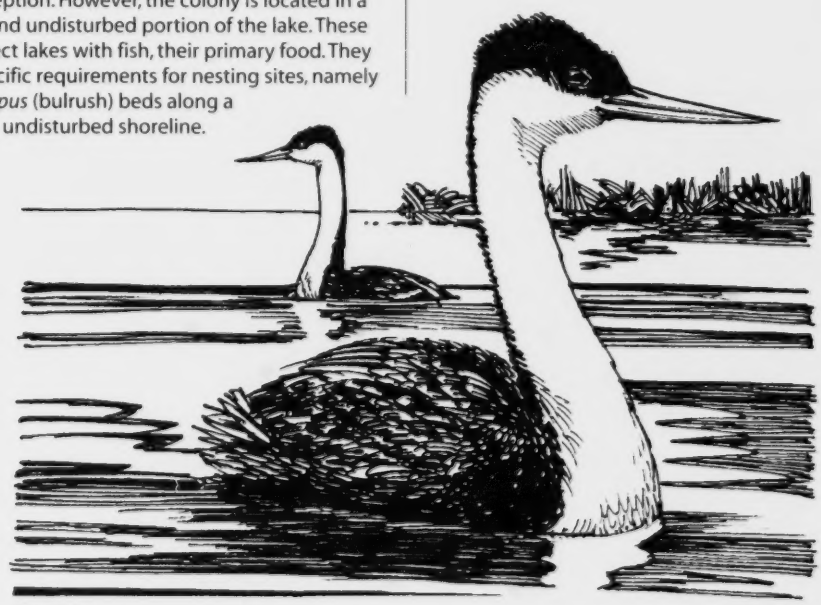
Results

Western grebes were found on 14 lakes in Alberta. The estimated population on all lakes surveyed was 10 738 adults, which represents about 10% of the world's population. Although two lakes that historically had large colonies have yet to be surveyed, and there may be a few lakes with very low numbers of breeding birds, it is suspected that the survey has not missed any significant numbers. The largest colonies currently are found in the northern limit of the range – Cold Lake, Lesser Slave Lake and Lac La Biche. These lakes are relatively remote and largely undeveloped. Buffalo Lake, the most southerly lake with a large colony is an exception. However, the colony is located in a remote and undisturbed portion of the lake. These birds select lakes with fish, their primary food. They have specific requirements for nesting sites, namely large *Scirpus* (bulrush) beds along a relatively undisturbed shoreline.

Of concern is the unexplained loss or marked reduction in colonies in several lakes. Thunder Lake had a colony in the 1960s but only a few birds have returned in recent years. Utikuma Lake, which supported a colony of over 1000 nests in 2000, was reduced to only a couple dozen birds in 2006. These two situations may have developed as a result of winterkills of fish in the lake. The population at Lac Ste. Anne has dropped from more than 500 nests to fewer than 100 in the past few years. The western grebes at Lake Wabamun, where the colony in the early part of the study numbered over 500 nests, have fluctuated downwards; then in 2005, more than 300 grebes were known to have been killed by an oil spill. These incidents underlie the tenuous nature of this bird in Alberta.

Recommendations and Future Direction

Surveys are set to continue in 2008; the western grebe will also be up for reassessment by the ESCC in the near future.



western grebe

COOPERATING AGENCIES

Most funding and some manpower for this project was provided by the Canadian Wildlife Service and the Alberta Conservation Association

For more information contact:

Hugh Wollis
(Hugh.Wollis@gov.ab.ca)

Related Species at Risk reports:
No. 41, 60, 94

BUFFALO LAKE MONITORING PROJECT

Project Supervisor: **Dave Prescott**

purpose

To prioritize shoreline areas based on the abundance and relative conservation importance of avian species around the lake, and to highlight areas where the protection of important bird habitats should be incorporated into land-use decisions.

REGION:
Prairies

TARGET SPECIES:
At Risk/May Be at Risk/ Undetermined species

***WILDLIFE ACT* CATEGORY:**
Varied

PROVINCIAL GENERAL STATUS:
Varied

Background

Buffalo Lake is one of the largest lakes in central Alberta. The lake has been recognized by numerous authorities as being important for wildlife, and most notably for breeding water birds. However, the lake is becoming increasingly popular for recreational and other developments. Several planning exercises are underway that will guide development and land use around Buffalo Lake in the future. In 2007, the Fish and Wildlife Division, with support from local partners, conducted a comprehensive survey of bird species around Buffalo Lake.

Methods

A total of 687 circular point counts (100 m in radius, 6-min in duration) were completed around the entire shoreline of Buffalo Lake between 29 May and 30 June 2007. Counts were centered on the shoreline of the lake, with half of each count sampling areas covered by water (including emergent vegetation), and the remaining half sampling upland habitats. Each count was assigned a value according to a formula that incorporated the abundance of each species observed in a count, and the risk of extirpation of each species in the province as determined by the *General Status of Alberta Wild Species 2005* (see page 9). Values for counts were then divided into LOW (42.1% of counts), MEDIUM (36.2%), HIGH (16.4%) or VERY HIGH (5.2%) classes, reflecting the conservation value of each segment of shoreline around the lake.

Results

A total of 125 species of birds were detected during point counts, and an additional 20 species of birds were encountered during other activities on the lake. Thirty of these species were classified as Sensitive status in Alberta; no species of higher risk status (At Risk or May Be at Risk) were present in 2007. The resulting areas of HIGH or VERY HIGH conservation value were therefore heavily influenced by the distribution of Sensitive species. These areas included the western parts of Secondary Bay, areas around Parlby Bay and the Narrows, emergent vegetation offshore from Scenic Sands, Bird Island, areas around the entrance and north end of Foreleg Bay, portions of Bashaw Bay, and the basin between Bashaw Bay and Foreleg Bay. These areas included significant colonies of several Sensitive species including horned grebes, western grebes, American white pelicans, great blue herons, black-crowned night-herons, Forster's terns and black terns, as well as significant aggregations of secure species such as California gulls, Franklin's gulls, ring-billed gulls, eared grebes, double-crested cormorants, and marsh wrens.

Water levels on Buffalo Lake were unusually high in 2007, but comparisons with historical records suggest that many of the high-priority areas are consistent across years. However, some species shift their distributions from year to year, and continued study of Buffalo Lake in other years, and during different times of the year are needed to fully assess the value of shoreline habitats to birds.

Recommendations and Future Direction

This project was completed in 2007. The results of this survey will be a valuable resource for identifying high-priority conservation areas for future land-use planning initiatives on Buffalo Lake.

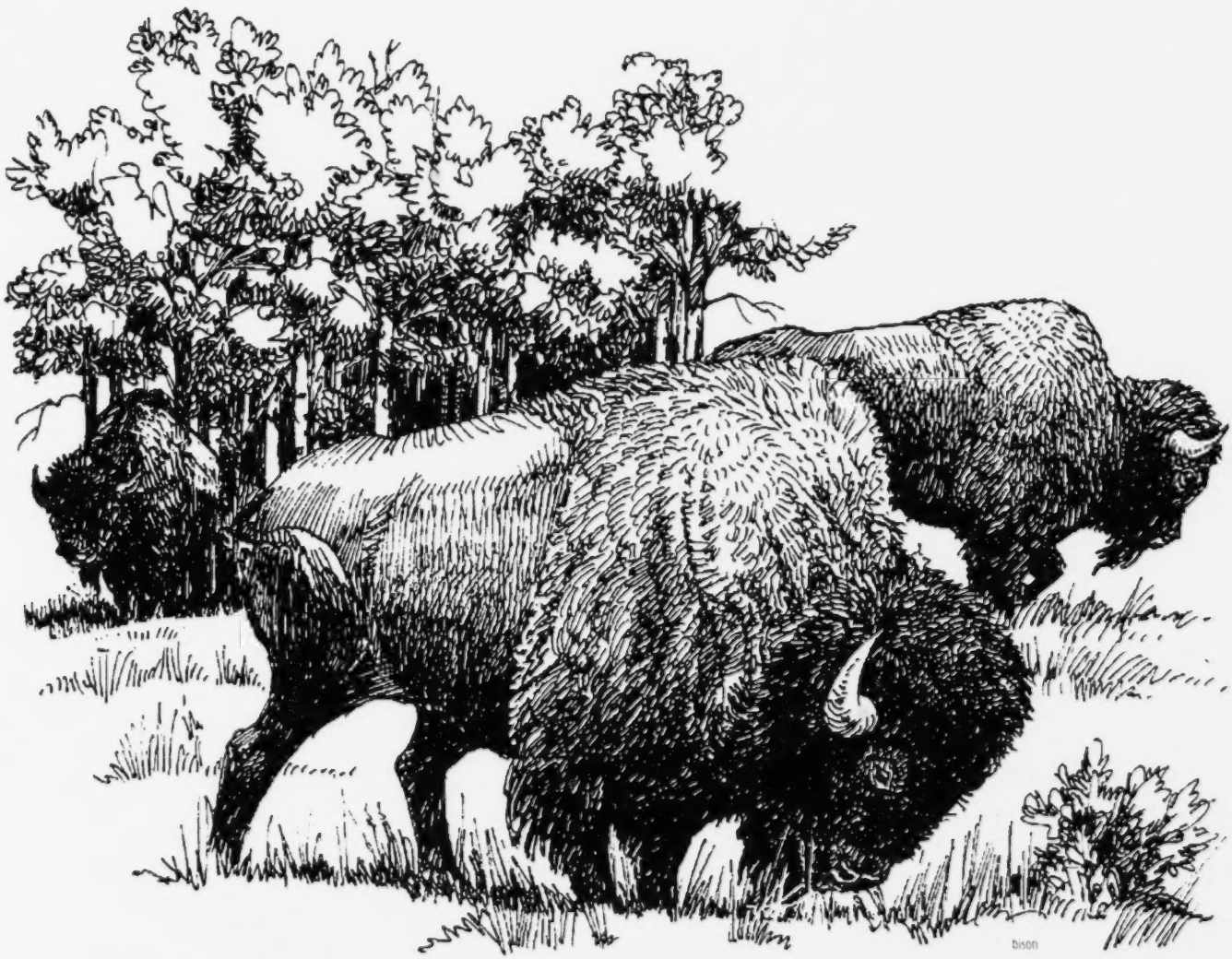
COOPERATING AGENCIES

Although the Species at Risk program provided manpower for this project, the following agencies financially supported this project: Alberta Environment, Alberta Sustainable Resource Development - Lands Division and Forestry Division, Cordero Energy, County of Stettler, and Lacombe County.
Other cooperating agencies include Alberta Conservation Association, Ducks Unlimited, Ol' MacDonald's Resort, and numerous landowners

For more information contact:

Dave Prescott (*see page 7*)

Related Species at Risk report:
No. 115


bison

ANALYSIS OF OWL PELLETS TO DETERMINE STATUS OF SMALL MAMMALS

Project Supervisor: **Roy Schmelzeisen** (ACA)

REGION:
Prairies, Lac La Biche, Woodlands

TARGET SPECIES:
Varied

***WILDLIFE ACT* CATEGORIES:**
Non-game and Non-licence

PROVINCIAL GENERAL STATUS:
At Risk, May Be at Risk, Undetermined

purpose

To update our knowledge of the distribution and relative abundance of many species of small mammals in Alberta.

Background

Analysis of prey remains found in owl pellets is an effective means of sampling certain small mammal species. Previous owl pellet analyses done in a relatively small region in the grasslands of Alberta have revealed that some species are more abundant than records obtained through trapping methods suggest. To expand on this knowledge, the Alberta Conservation Association, Alberta Sustainable Resource Development and the Royal Alberta Museum initiated a broad-scale collection and analysis of owl pellets in 2000 within Alberta's Grassland and Parkland natural regions. Species at Risk Program funds directed toward this project during this 2004-2008 reporting period covered some costs associated with analyses of collected pellets.

Methods

Pellets were collected between April and September in 2000 and 2001, from great horned owls (*Bubo virginianus*) as they are non-migratory and highly opportunistic hunters common to the grassland and parkland natural regions of Alberta. Small mammal remains from the owl pellets were compared to specimens from the Royal Alberta Museum and the University of Alberta Museum Of Zoology. Dental patterns of molar teeth were the primary means of identifying species of mammals with otherwise similar skeletal structures. As the purpose of the study was to determine small mammal distributions and abundances, efforts were focused on identifying small mammal specimens and less effort was given to identifying remains from other taxonomic groups.

Results

In total, animal remains from 12 102 specimens and 212 sites were examined and identified; of those, 10 862 mammal specimens were identified to species. These specimens represented 24 different species that included 16 rodent, 5 shrew and 3 weasel species.

Sagebrush voles (*Lemmiscus curtatus*), northern grasshopper mice (*Onychomys leucogaster*), prairie voles (*Microtus ochrogaster*), and olive-backed pocket mice (*Perognathus fasciatus*) were found frequently in pellets and were often found outside of their currently known range. This information suggests that these species have larger ranges than was previously known. The abundant occurrence of prairie vole remains in the collection assisted in clarifying the status and range of prairie voles in Alberta in *The General Status of Alberta Wild Species 2005*. Few remains were found for thirteen-lined ground squirrels (*Spermophilus tridecemlineatus*) and long-tailed weasels (*Mustela frenata*) and no identifiable remains were found for Franklin's ground squirrels (*Spermophilus richardsonii*), Ord's kangaroo rats (*Dipodomys ordii*), or western-harvest mice (*Reithrodontomys megalotis*).

Recommendations and Future Direction

This form of data collection is effective for certain species of small mammals for several reasons:

1. it captures data on some species that are not easily captured by other methods (e.g., snap trapping);
2. there is no need to kill additional specimens, some of which may be of rare or *Endangered* species; and
3. it facilitates efficient study across broad study areas.

There are several avenues for further study:

1) owl pellets could be collected again from the same areas to investigate temporal variation in abundances of small mammal species;
2) owl pellets could be collected within the Grassland and Parkland natural regions that were missed by previous collection endeavours; and
3) such research could potentially be conducted within the Boreal Forest, Foothills, or Rocky Mountain natural regions if nest locations are recorded or nest boxes set up.

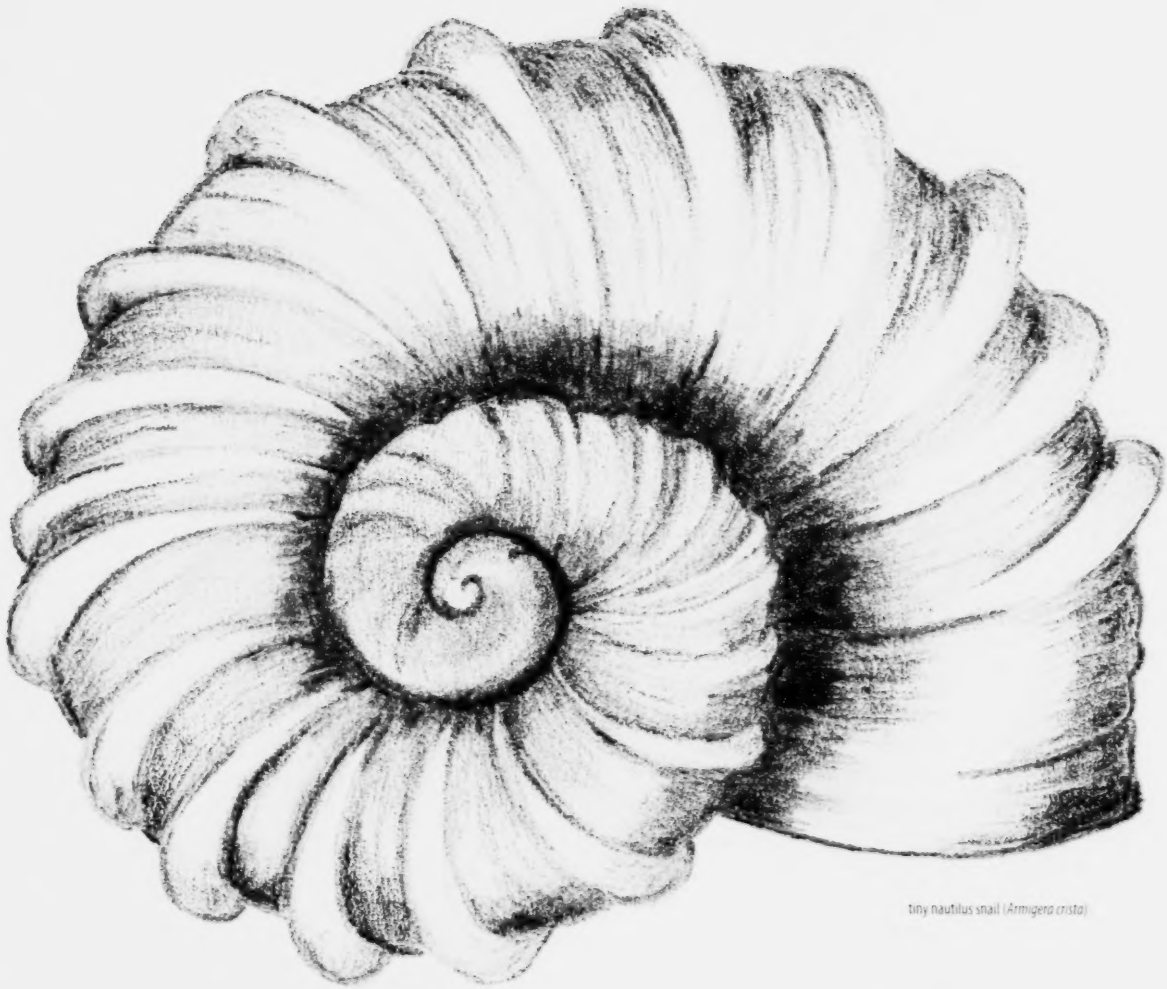
COOPERATING AGENCIES

Alberta Conservation Association, Royal Alberta Museum, volunteer naturalists

For more information contact:

Gordon Court (*see page 7*) or
Roy Schmelzeisen
(Roy.Schmelzeisen@ab-conservation.com)

Related Species at Risk report: No. 17



tiny nautilus snail (*Armigera crista*)

(illustration courtesy of M.Curteanu)

SURVEY OF AQUATIC GASTROPODS IN THE CENTRAL PARKLAND SUBREGION OF ALBERTA

Project Supervisor: **Dave Prescott**

purpose

To update the distribution and relative abundance of many species of aquatic molluscs in Alberta.

REGION:
Prairies, Woodlands, Lac La Biche

TARGET SPECIES:
At Risk, May Be at Risk, Undetermined species

***WILDLIFE ACT* CATEGORY:**
None

PROVINCIAL GENERAL STATUS:
Varied

Background

Despite their importance in wetland systems, few studies have focused on aquatic mollusks in Alberta. Our current understanding for many species is too limited to accurately determine their range, habitat requirements and biological status. Twenty-four (30%) of 80 recognized species or subspecies of aquatic gastropods and bivalves are currently listed as being of Undetermined general status in the province because of poor information (Clifford 2001, Lepitzki 2001). Of those that can be classified, almost half are deemed to be either Sensitive, May Be at Risk or At Risk. Most authorities urge that current information be enhanced through extensive inventory efforts. In 2001, a detailed inventory of aquatic mollusks in the Central Parkland Subregion of central Alberta (representing approximately 8% of the province). Our ultimate goal was to clarify the biological risk of many species that are currently classified as being of Undetermined status in the province. This update deals only with the aquatic gastropods; analysis of bivalves will be reported in future updates.

Methods

To ensure representative sampling over a wide area, we collected samples from (when available) one creek, one river, one pond and one lake within each of the 1:50 000 map sheets that encompass the subregion. Samples were collected primarily with hand nets and Eckman dredges. We recorded pH and conductivity with handheld meters at each site. Samples were later sorted and identified based on morphological characteristics, following nomenclature of Lepitkzi (2001) and Turgeon *et al.* (1998).

Results

Sampling was conducted at a total of 197 sites (43 creeks, 67 lakes, 32 rivers and 55 ponds) between 14 July and 5 September 2001. Waterbodies ranged in pH from 6.0 to 10.7, and in conductivity from 0.24 to 119.1 mS. Seventeen sites (8.7%), generally alkali lakes and ponds, contained no aquatic gastropods. Of the 180 sites that supported aquatic gastropods, a total of 31 904 identifiable specimens of 32 species or subspecies were found. *Valvata tricarinata* was the most abundant species, in terms of both total numbers of specimens collected (9448) and mean number of individuals/sample (304.8). The most widely distributed species (live or dead specimens) was *Gyraulus deflectus* (54.8% of sites). The most widely distributed species based on the occurrence of live specimens was *Physella gyrina* (25.4% of sites). Twenty-one species (65.6% of total) were found at less than 10 sites in the Central Parkland Subregion. Species showed wide tolerances to water conditions, and several species were found at pH values as high as 10.7.

We identified one species, *Planorbella campanulata*, which has not previously been recorded in Alberta. A single shell of *Ferrissia fragilis*, apparently the second record for Alberta, was retrieved from a site 15 km north of Edmonton. A notable range extension was observed for *Planorbella pilsbryi infracarinatum*, which was found at three sites in the Battle River system in the western half of the region. The species was previously known in Alberta only from Lac La Biche.

Recommendations and Future Direction

Based on information collected in this inventory, the current status of four species may require revision: *Valvata tricarinata* (currently listed as Sensitive) was found to be widespread, abundant and tolerant of a broad range of water conditions; *Aplexa elongata* (currently Secure) was sparsely distributed and of low abundance; *Gyraulus crista* (currently Sensitive) was common and widespread; and *Menetus opercularis* (currently May Be at Risk) had a broad distribution and was locally abundant. Substantial new information was provided that will help clarify the status of many other species in the province. However, resolution of outstanding taxonomic issues and completion of inventories in other areas of Alberta will be necessary to accomplish this task.

COOPERATING AGENCIES

Alberta Conservation Association, North American Waterfowl Management Plan, Royal Alberta Museum

For more information contact:

Dave Prescott (*see page 7*)

Related Species at Risk report: No. 92

yucca (soapweed)

ADOPT-A-PLANT ALBERTA PROGRAM

Project Supervisors: **Robin Gutsell** and **Lisa Matthias**

REGION:
Provincial

TARGET SPECIES:
At Risk, May Be at Risk, Sensitive, Undetermined species

***WILDLIFE ACT* CATEGORY:**
Varied

PROVINCIAL GENERAL STATUS:
Varied

purpose

To engage volunteer plant enthusiasts, "citizen scientists," to search for new locations and monitor known sites of select plant and lichen species in Alberta, to provide much needed data for detailed status assessment and for use in conservation and planning.

Background

The 2005 *General Status of Wild Species in Alberta* report identified a large number of vascular plant species that may be at risk in the province. Unfortunately, most of these species lack sufficient information on their populations and distributions to allow them to undergo a detailed status assessment. The Adopt-a-Plant Alberta program was initiated in 2005 to address the need to gather more information on rare plants and lichens to assist with provincial status assessments. The program was designed to provide the training and variety of support services needed to facilitate the collection of standardized data on rare plants by citizen scientists. Agencies involved with developing the program include Alberta Species at Risk Program, Alberta Native Plant Council, Alberta Natural Heritage Information Centre, Prairie and Northern Plant Diversity Centre, Federation of Alberta Naturalists, and an independent lichenologist.

Adopt-a-Plant Alberta trains volunteer plant enthusiasts from across Alberta to identify and record observations of rare species across the province. Data collected by volunteers are provided to the Alberta Natural Heritage Information Centre, which tracks information on Alberta's plant and animal biodiversity. The information is available to be used in detailed status assessments and is also available to industry and other land users to "flag" occurrences of rare species to help mitigate effects of development and other land uses on these species.

The scope and capacity of the program have evolved since its inception; in addition to a focus on inventory and data collection for potentially at-risk species, the program integrates with ongoing provincial recovery efforts. Adopt-a-Plant Alberta contributes to recovery actions for plant species at risk through education and awareness, providing survey and monitoring support, promoting stewardship and contributing directly to stewardship and management activities, and providing any additional support requested by recovery teams. The program also has fostered a relationship with the Nature Conservancy of Canada (NCC); Adopt-a-Plant Alberta volunteers assist NCC by carrying out surveys and providing data for rare plants on NCC properties, which helps this organization steward its land, and NCC provides opportunities for volunteers to take part in habitat stewardship initiatives. Overall, these collaborations will enhance Adopt-a-Plant Alberta volunteers' knowledge about species at risk and habitat stewardship, which they may promote within their own communities across Alberta.

Methods

Each spring, Adopt-a-Plant Alberta conducts training workshops in two locations in Alberta (one north and one south). At these workshops, professional botanists, academics and resource management professionals train volunteers on how to identify and survey for rare plants, how to use GPS units and topographical maps, and field safety. Volunteers "adopt" one or more rare species from a prioritized list of species. During the spring and summer, volunteers search for new occurrences of their adopted species or monitor it at locations where it has been previously identified. Several group field events are planned each summer to allow volunteers to assist resource management agencies, private stewardship organizations (NCC), and plant species at risk recovery programs with specific conservation or habitat stewardship initiatives. Most recently, 2007 field events included a rare plant survey of a NCC property and population surveys of at risk species including western spiderwort (*Tradescantia occidentalis*) and tiny cryptanthe (*Cryptantha minima*).

COOPERATING AGENCIES

Alberta Native Plant Council, Alberta Natural Heritage Information Centre, Alberta Sport, Recreation, Parks and Wildlife Foundation, Alberta Tourism, Parks and Recreation, Calgary Zoological Society, Canadian Wildlife Service, Canadian Forest Service Northern Forestry Centre, City of Edmonton, Coyote Coulee Seeds, Devonian Botanic Garden, Environment Canada Habitat Stewardship Program, Enviroscapes, Federation of Alberta Naturalists, Grasslands Naturalists, Jacques Whitford AXYS Ltd., Nature Conservancy of Canada, Parks Canada, Prairie & Northern Plant Diversity Centre, Royal Alberta Museum, Shell Canada, TD Friends of the Environment, TERA Environmental Consulting, University of Alberta, University of Calgary

For more information contact:

Lisa Matthias or **Robin Gutsell**
(*see page 7*)

Adopt a Plant website:
www.ab.adoptaplant.ca

Results

Volunteers began fieldwork for the program in 2006. In that year, 33 volunteers found 15 species of rare plants. In 2007, a total of 41 volunteers found 20 species. Some of these occurrences were historical sites that were relocated and others were new sites. Other achievements over the first two years of implementation included hiring of a program coordinator; development of an interactive program website; successful advertising, promotion, and fundraising; engagement of increasing numbers of (returning) volunteers; integration with ongoing recovery programs and other relevant agencies; and volunteer recognition events. An Alberta Species at Risk report is in preparation to summarize work completed by the program since its inception in 2005.

Recommendations and Future Direction

In 2008, the program will focus data collection activities on a smaller number of rare species in an attempt to collect sufficient data to carry out detailed status assessments in the near future. Volunteers will continue to receive training and support for species adopted in previous years, but there will be a concerted effort for data collection for 3-4 species. Planning is also underway for volunteers to participate in several conservation and habitat stewardship activities undertaken by recovery teams/programs for tiny cryptanthe, western spiderwort, western blue flag, and small-flowered sand verbena (*Tripterocalyx micranthus*). In addition, a field workshop on limber (*Pinus flexilis*) and whitebark (*Pinus albicaulis*) pines, and two additional field surveys of rare plants (one on a NCC property and another near Lac La Biche, Alberta) are planned for 2008.

small-flowered sand verbena

MULTISAR

Project Supervisors: **Brandy Downey**, **Richard Quinlan**, and **Paul Jones** (ACA)

REGION:
Prairie

TARGET SPECIES:
Approximately 40 species of management concern

***WILDLIFE ACT* CATEGORIES:**
Endangered, *Threatened* and Non-game

PROVINCIAL GENERAL STATUS:
At Risk, May Be at Risk, Sensitive, Undetermined and Secure

purpose To develop a process to manage multiple species at risk on a defined landscape.

Background

The MULTISAR name is an acronym derived from "multiple species at risk." MULTISAR is a cooperative initiative that provides interdepartmental and interagency cooperation toward conservation and recovery of multiple species at risk across Alberta's prairie landscape.

The first two years of the program (2002-2003, 2003-2004) concentrated on the development of MULTISAR processes through baseline wildlife inventories, Habitat Suitability Index (HSI) models, prioritizing of the landscape for conservation activities using Multi-species Conservation Values, and developing Beneficial Management Practices. After 2004 the focus of the project progressed toward development and implementation of detailed Habitat Conservation Strategies in the highest priority areas for prairie species at risk. In 2007 that focus evolved again toward a more rapid assessment for development of more numerous Species at Risk Conservation Plans and increased use of information outreach tools through an extension program. The MULTISAR process is now available throughout Alberta's entire Grassland Natural Region. MULTISAR does not replace single species recovery projects, but provides an effective complementary approach where landscape scale or socio-economic conditions limit effectiveness of more focused efforts toward single species.

MULTISAR is guided by a project management plan which outlines the project's vision, mission, goals and objectives.

Vision: Multiple species of wildlife, including species at risk, are effectively conserved at the landscape level, through a process that integrates range management and industrial land management with fish and wildlife management principles, and does so in a manner that may contribute to the sustainability of the rural economy.

Mission: To develop and implement the MULTISAR process directing conservation of multiple species at risk, and associated fish and wildlife, within the Grassland Natural Region of Alberta.

Goal: To assist landowners and lessees to manage their land to benefit provincial and federal species at risk, while maintaining an economically viable operation.

Objectives:

- To provide recovery and maintenance for numerous species at risk through a multi-species landscape-based approach.
- To engage landholders (owners and lessees) in the development of habitat conservation strategies within Alberta's highest priority areas for species at risk.
- To develop and implement Species at Risk Conservation Plans, for broader use throughout the Grassland Natural Region.
- To inform large numbers of Albertans about positive benefits of species at risk, and to encourage them to undertake stewardship to sustain species at risk.
- To facilitate industrial development in a manner that provides conservation for species at risk and native prairie ecosystems.

Methods

The recommendations in recovery plans for prairie-based *Endangered* and *Threatened* species were reviewed and incorporated into MULTISAR Beneficial Management Practices, for use in the preparation of Habitat Conservation Strategies and Species at Risk Conservation (SARC) Plans. SARC Plans include an office review of Fish and Wildlife Information System (FWMIS) data, species' ranges, habitat suitability, and air photo analysis. Following that, a landowner meeting is held and a rapid assessment of the land is completed, leading to provision of a report with management recommendations being provided to the cooperating landowner.

MULTISAR has increased the focus on education and awareness in recent years. This has led to partnerships with Alberta Conservation Association and Nature Conservancy of Canada to develop the At Home on the Range guide.

COOPERATING AGENCIES

Alberta Conservation Association, AltaLink, Alberta Parks, Environment Canada Department of Fisheries and Oceans, Environment Canada Habitat Stewardship Program, Nature Conservancy of Canada, North American Waterfowl Management Plan, SHELL Environment Fund; TD Friends of the Environment, Sustainable Resource Development – Public Lands, various lessees and landowners

For more information contact:

Brandy Downey, **Richard Quinlan**
(*see page 7*);
Shannon Frank
(Shannon.Frank@gov.ab.ca) or
Paul Jones
(Paul.Jones@ab-conservation.com)

Related Species at Risk reports:
No. 72, 86, 87, 98, 108, 114

MULTISAR website:
http://www.multisar.ca/

This guide is an important tool for encouragement of species at risk stewardship, and is a key part of a MULTISAR extension program. MULTISAR is also active throughout Alberta's prairie region in delivery of presentations on stewardship for species at risk. Further, program information is now easily accessible on the MULTISAR website.

Results

Habitat Conservation Strategies have been initiated or completed on over 200 000 acres of Alberta's highest priority lands for multiple species at risk in the Milk River, Pakowki, and St. Mary's basins. MULTISAR engages the landowner/lessee as a full partner in the development of these strategies, along with range and wildlife specialists.

Numerous SARC Plans were completed by the end of 2007-2008 for areas throughout prairie Alberta, and were recently made available to other landowners upon request. Factsheets were developed for inclusion in SARC Plans outlining beneficial management practices for MULTISAR focal species. Titles include: *Grassland Birds, Burrowing Animals, Loggerhead Shrike, Raptors, Reptiles, Sharp-tailed Grouse*, and *Wetland Species*. Several additional factsheets were created to increase landholder awareness of certain management practices that impact species at risk, and how they can be improved. The factsheets include *Farm and Hay Land, Industrial Guidelines, Grazing Riparian Areas*, and *Shelterbelts*.

Approximately 5 000 copies of the *At Home on the Range* guide have been distributed to landholders, landholder groups, watershed and stewardship groups, counties, Fish and Wildlife offices, Public Lands offices and Land Management offices. A new MULTISAR introductory brochure was developed and 1000 of these have been distributed. Other custom-made MULTISAR products include binders for SARC Plans, gate signs and certificates for MULTISAR cooperators, and information brochures titled *Frequently Asked Questions about Species at Risk Legislation, Funding Opportunities for Agricultural Producers*, and *Species at Risk Identification Guide* (brochure and poster).

An interactive module has been developed for Alberta's grade seven students to use prairie species at risk as examples within the *Interactions and Ecosystems* science curriculum.

Other key developments of the MULTISAR program include:

- Additional MULTISAR staff were hired in 2007, including an extension services coordinator, range agrologist, and wildlife biologist.
- An HSI Tool was developed and is now in general use by Fish and Wildlife staff in their reviews of industrial referrals.
- A public meeting was held in Hanna in November 2007 to inform landholders about species at risk, address concerns about legislation and provide information about Species at Risk Conservation Plans.
- A Management Advisory Committee was initiated in 2006 and has met several times since then, to provide guidance by managers of the MULTISAR project partners.
- The MULTISAR website has been developed and revised to provide increased access for the general public.

Recommendation and Future Direction

A Grassland Vegetation Inventory mapping classification system is being completed and will be used in revisions of MULTISAR habitat mapping in 2008. Also in 2008, a socio-economic analysis report will be completed to provide greater information on social, economic and ecological values of prairie species at risk. The HSI models and search tool for 13 priority species at risk will be posted on the external SRD website, alongside other guidelines for industrial developers. This will help industrial developers become aware of species at risk issues prior to purchasing mineral rights in an area, and will facilitate consultation at an early planning stage.

Increased emphasis will continue on information and outreach for conservation and recovery of species at risk. This will include the development of a self-serve SARC Plan guide for landholders to be posted on the MULTISAR web site. Opportunities will be explored for showcasing businesses that consider species at risk in their management. Interactive school presentations will be continued, with an emphasis on rural schools and Hutterite colonies. A demonstration tour and field school will be developed for landholders. Extension services will be enhanced through participation on various committees such as the Prairie Conservation Forum, Inside Education, and through participation in prairie field trips, teachers' institutes, and creation of distance learning broadcasts. MULTISAR will collaborate with Alberta Parks to create interpretive walks and displays for species at risk.

SOUTHERN HEADWATERS AT RISK PROGRAM

Project Supervisor: **Richard Quinlan** and **Francois Blouin**

REGION:
Prairie

TARGET SPECIES:
Several species of management concern

***WILDLIFE ACT* CATEGORY:**
Varied

PROVINCIAL GENERAL STATUS:
Varied

To prioritize non-game species and species at risk and the landscapes they are dependent upon, and to provide tools to assist management by government and non-government agencies.

Background

The Southern Headwaters at Risk Program (SHARP) was carried out in the headwaters of the Oldman River Basin in southwestern Alberta during three years from 2003-2004 to 2005-2006. This area supports Alberta's highest wildlife species diversity.

The primary goal of the SHARP project was to provide a series of reports and mapping products that could be used to prioritize the southern mountain and foothill landscapes for multi-species objectives. It was understood early on that funding for the project would be short-lived and could not result in management of a long-term stewardship project (such as MULTISAR, see page 27). This led to a decision to concentrate on development of resources that could be integrated into the activities of conservation organizations already active on this landscape. Specific objectives included:

- To carry out surveys for species at risk for which data are lacking, in particular amphibians, grassland birds and butterflies.
- To develop a species selection process to establish focal species for the landscape.
- To identify habitat associations of focal species and describe these through Habitat Suitability Index (HSI) models and maps.
- To summarize natural landscape processes of importance in the mountains, foothills, and grasslands of the SHARP project area.
- To develop beneficial management practices and land use guidelines for SHARP priority species.
- To provide conservation and stewardship recommendations for landscape management units in the SHARP area.
- To provide documents and resources useful to land managers, industrial planners, and conservation planners, to help achieve conservation of non-game wildlife and species at risk.

Methods

A review was carried out to determine natural processes of importance on the landscape. This was followed by a species selection process involving several biologists from various agencies. Inventories were done on amphibians, grassland birds, and butterflies to improve information on their distribution and habitat association. A team of professionals was assembled including representatives from the Fish and Wildlife Division, Alberta Conservation Association, Parks Canada, University of Lethbridge, and consulting biologists. The team developed habitat suitability models for 15 of the SHARP focal species and the distribution of habitat was mapped using digital data. Beneficial management practices and land use guidelines were completed and provided in a report. A literature search was done to determine landscape pressures on wide-ranging species.

Results

The primary result of the SHARP project was the production of several Species at Risk Series reports primarily by Francois Blouin, Norbert Kondla, and Kim Pearson. A list of these reports and the subjects they address is summarized below:

SAR # 80: A conservation overview of butterflies (Kondla)

SAR # 89: A summary of natural processes (Blouin)

SAR # 90: Species selection and habitat suitability index models (Blouin, Taylor and Quinlan)

SAR # 96: A Gillett's checkerspot butterfly survey and guidelines (Kondla)

SAR # 97: Amphibian and western painted turtle surveys (Pearson)

SAR # 105: Landscape management recommendations (Blouin)

SAR # 106: Beneficial management practices and land use guidelines (Blouin)

SAR # 107: A summary of landscape pressures on wide-ranging species (Blouin)

Recommendations and Future Direction

The SHARP project was completed at the end of the 2005-2006 field season. Although there will be no further project-specific activities, the project "lives on" through continued availability of the eight project reports. The information in these reports provides guidance for resource and land managers within government. In addition, several non-government conservation groups continue to use the resources provided through SHARP in their day-to-day management of the landscapes they control or influence.

COOPERATING AGENCIES

Alberta Conservation Association, Environment Canada's Habitat Stewardship Program

For more information contact:

Brandy Downey, **Richard Quinlan** (*see page7*),
Francois Blouin
(Francois.Blouin@gov.ab.ca)
Brad Taylor (ACA)
(Brad.Taylor@ab-conservation.com)

Related Species at Risk reports:
No. 80, 89, 90, 96, 97, 105, 106, 107

LANDSCAPE-LEVEL PLANNING – SETTING FISH AND WILDLIFE LANDSCAPE OBJECTIVES

Project Supervisors: **Anne Hubbs**, **Matt Besko** and **Terry Kosinski**

REGION:
Waterways and Lac La Biche

TARGET SPECIES:
May Be at Risk, Sensitive, Undetermined species

***WILDLIFE ACT* CATEGORY:**
Varied

PROVINCIAL GENERAL STATUS:
Varied

purpose To develop a process to define landscape-level management objectives for wildlife and fisheries populations and their habitat.

Background

In 2004, the Assistant Deputy Minister of Sustainable Resource Development directed biological staff to develop a template for landscape-level planning within the former Northeast Region (currently encompasses Waterways and Lac La Biche).

The intent of this template was to:

1. define landscape-level boundaries;
2. summarize landscape-specific information that may influence the management of wildlife and fish populations and their habitats; and
3. establish objectives for the management of wildlife and fish populations and habitat within each landscape unit.

Methods

Landscape units were delineated using watershed boundaries, which averaged 1 000 km^2 in size. Goals and indicators were established to aid in setting landscape-level objectives. They were modeled after the Biodiversity Annex in the Alberta Forest Planning Manual and the Foothills Model Forest's indicators of sustainable forest management. Ecosystem goals included maintaining the full range of cover types and age classes, reducing habitat fragmentation, and maintaining the integrity of riparian areas. The indicators associated with each of these goals were forest-age-distribution per cover type, amount of interior forest, and percent of undisturbed riparian areas, respectively.

Species' goals were to maintain viable populations of native wildlife species, and wildlife models (Habitat Suitability Indices, Resource Selection Functions) were developed for species selected during a detailed scoping exercise (e.g., northern goshawk (*Accipiter gentilis*), barred owl (*Strix varia*), moose (*Alces alces*) and pileated woodpecker (*Dryocopus pileatus*)). GIS tools were created for each species and ecosystem indicator to allow the user to evaluate:

1) current state; and
2) potential effects of different land use scenarios (e.g., harvest plans).

Watersheds with high value for a given indicator were placed in one of five Management Area classes (Old Growth, Interior Forest, Ungulate Winter, Old Growth Forest Bird Guild, and Caribou). For each Management Area class, management objectives and guidelines for land use were developed. Moreover, quantifiable targets for habitat and/or anthropogenic footprint were developed from the literature. The natural range of variability was used to set old growth targets at a subregional scale. Project deliverables included landscape-level objectives, spatial data layers, maps and a short summary report for each watershed. The report summarized information on each ecosystem and species indicator, plus amount of anthropogenic footprint and local knowledge.

Recommendations and Future Direction

Additional habitat suitability indices or resource selection functions should be developed for other wildlife species selected during the scoping exercise. The general process developed in this pilot project could be used to set landscape objectives in areas outside the original areas.

COOPERATING AGENCIES

Alberta Conservation Association, Integrated Regional Services (SRD)

For more information contact:

Anne Hubbs
(Anne.Hubbs@gov.ab.ca)
Matt Besko
(Matt.Besko@gov.ab.ca)
Terry Kosinski
(Terry.Kosinski@gov.ab.ca)

HABITAT STEWARDSHIP PROGRAM FOR SPECIES AT RISK IN SPECIAL AREAS 2, 3 AND 4 OF SOUTHEASTERN ALBERTA

Project Supervisor: **Arlen Todd**

REGION:
Prairies

TARGET SPECIES:
Approximately 17 species of management concern

***WILDLIFE ACT* CATEGORIES:**
Endangered, *Threatened* and Non-game

PROVINCIAL GENERAL STATUS:
At Risk, May Be at Risk, Sensitive

To identify priority areas of native prairie and initiate habitat stewardship actions for species at risk in Special Areas 2, 3 and 4.

Background

Significant blocks of native prairie still remain in the Special Areas, at the scale of one to several townships in size. These blocks of native prairie are situated in a regional landscape where significant fragmentation of native prairie has occurred, resulting in declines in species such as the ferruginous hawk and burrowing owl. Areas of remaining suitable habitat are important for a variety of at-risk and sensitive species. In addition, many other relatively rare grassland species occur in the project area, and stewardship actions may help to prevent them from becoming at risk.

Methods

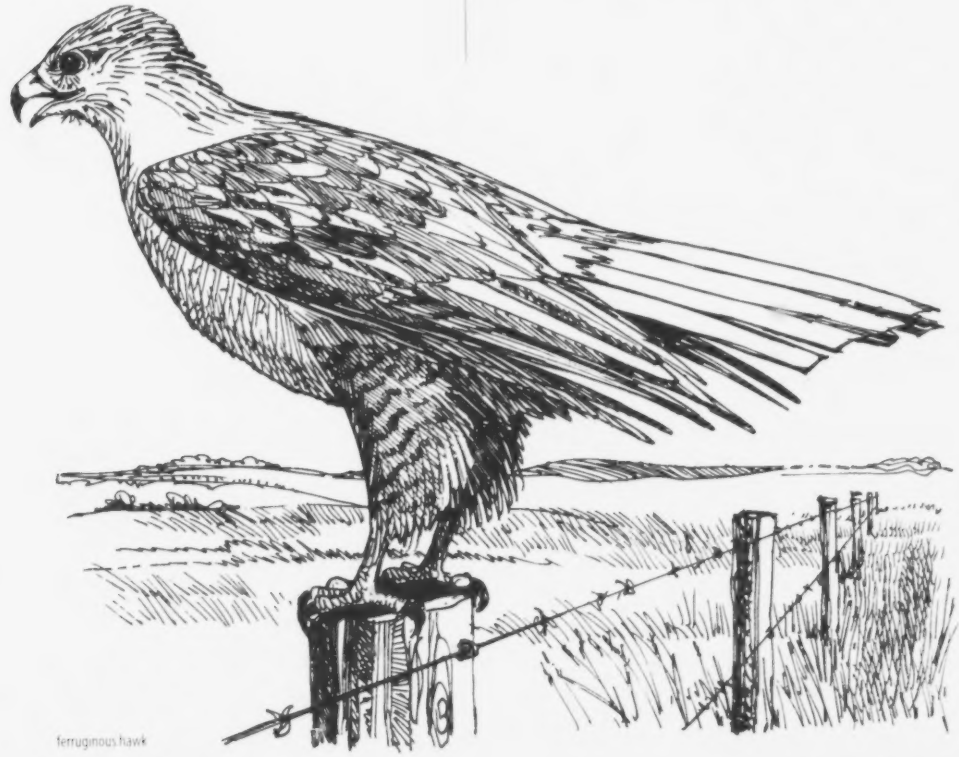
Information was collected from databases such as the Fish and Wildlife Management Information System (FWMIS) and from native vegetation studies, breeding bird surveys and other sources. This information was considered in conjunction with examination of aerial photos and field reconnaissance to complete a township-by-township landscape assessment, which identified priority areas for stewardship actions.

Results

The township-by-township landscape assessment was updated each year based on current data. Intensive landholder contacts were made in priority areas. Additionally, a detailed wildlife habitat assessment was completed, and management recommendations were assembled for one priority landholder parcel selected for stewardship actions. Generalized range assessments of specific priority parcels were completed on three priority parcels. Extensive liaison was continued with landholders on burrowing owl trend blocks. Additional inventories for the long-billed curlew, ferruginous hawk and other grassland species were completed in data-deficient areas.

Recommendations and Future Direction

The project was completed in March 2006.



ferruginous hawk

COOPERATING AGENCIES

Alberta Conservation Association, Environment Canada, Special Areas Board

For more information contact:

Arlen Todd (*see page 7*)

Related Species at Risk reports: No. 80, 89, 90, 105, 106, 107

VAUXHALL HABITAT CONSERVATION STRATEGY

Project Supervisors: **Francois Blouin** and **Richard Quinlan**

REGION:
Prairies

TARGET SPECIES:
At Risk, May Be at Risk, Undetermined species

***WILDLIFE ACT* CATEGORY:**
Varied

PROVINCIAL GENERAL STATUS:
Varied

purpose

To develop a Habitat Conservation Strategy to ensure long-term management of native grasslands within the lands of the Vauxhall Grazing Association.

Background

The Vauxhall Habitat Conservation Strategy was a joint project carried out with Operation Grassland Community from 2006 to 2008. It was focused on the lands of the Vauxhall Grazing Association, composed of three blocks of mainly contiguous native grassland totalling approximately 70 000 acres in south-central Alberta. The area is two-thirds Alberta Public Lands under lease to the Vauxhall Grazing Association, and one-third "Tax Recovery" land, in the process of transfer to the County of Taber. The grazing association requested development of a habitat conservation strategy to ensure long-term management of native grasslands. The Vauxhall Grazing Association lands provide habitat for many species at risk including burrowing owl, northern leopard frog, ferruginous hawk, Sprague's pipit, great plains toad, and prairie falcon.

Methods

In 2006, roadside surveys were conducted for short-eared owls, diurnal raptors, and loggerhead shrikes. Amphibian and reptile surveys were also completed by foot in suitable habitat. A visual habitat assessment was also done for all these groups. Incidental mammal and bird observations were also recorded. In June and July 2007, bird/wildlife point counts, burrowing owl call playbacks, and nocturnal amphibian surveys were conducted on all lands leased by the Vauxhall Stock Grazing Association. An August northern leopard frog survey was done as well.

Survey results and MULTISAR habitat models will be used to identify areas for implementation of Operation Grassland Community and MULTISAR beneficial management practices. A Habitat Conservation Strategy is being developed to provide information for the conservation of native habitats (especially grasslands).

Results

After results are completed in March 2008, a habitat conservation strategy will be developed. Results will be provided to the Vauxhall Grazing Association, SRD-Lands Division, and the County of Taber in report format.

Recommendations and Future Direction

The Vauxhall Habitat Conservation Strategy will be provided to the landowners and land managers as a resource to help guide wise resource management decisions on the native grassland landscape. It will also be provided to project partners, which include several of the oil and gas companies that are active in the area.

COOPERATING AGENCIES

Alberta Conservation Association, Canadian Natural Resources Ltd., ConocoPhillips, Operation Grassland Community, SHELL Environmental Fund

For more information contact:

Richard Quinlan (*see page7*)
Francois Blouin
(Francois.Blouin@gov.ab.ca)

burrowing owl

additional projects

This section includes some smaller projects done by staff without designated project funds and also includes some larger projects which the Alberta Species at Risk Program provides assistance to, but are led or coordinated by other groups. Involvement may be through in-kind staff participation or provision of funds. Brief descriptions of some of these projects have been provided.

Harlequin Duck Surveys

As a Species of Special Concern, the harlequin duck requires regular monitoring to track its status, and to improve understanding of ecological relationships regulating distribution, abundance, and productivity. Aerial spring (May) pair surveys and fall (August) brood surveys were conducted in 2006 and 2007 in the Willmore Wilderness Park along several rivers and one creek. Watercourses within this park provide habitat for harlequin ducks that has minimal human disturbance, which is rare in other parts of the species' provincial distribution. Additionally, annual trend surveys are carried out in the headwater areas of Oldman River and Carbondale River by observers walking designated stream sections.

Lethbridge Rattlesnake Conservation

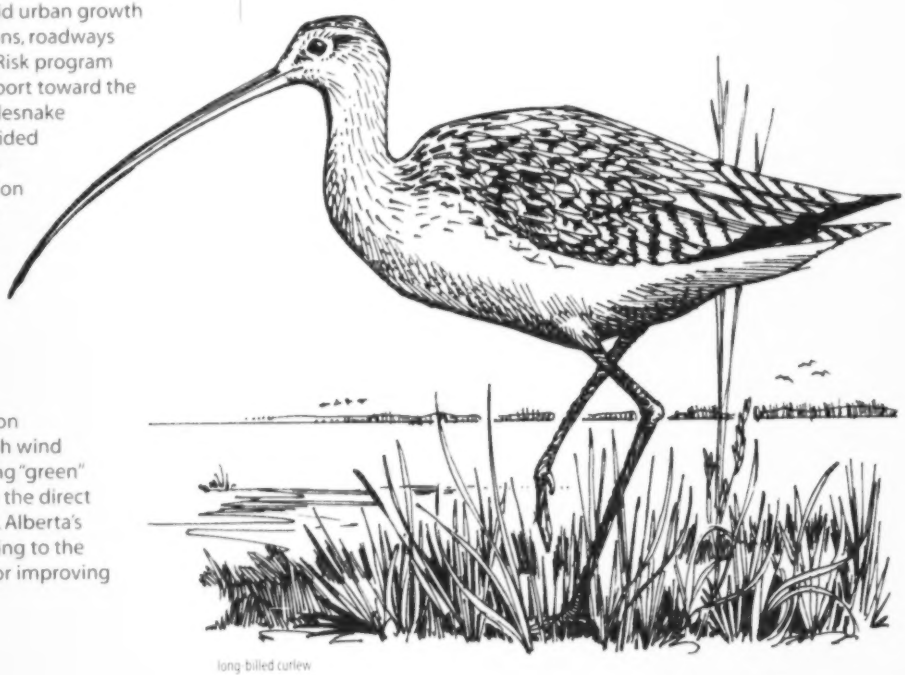
Conservation of the native prairie rattlesnake population in the City of Lethbridge is a challenge due to rapid urban growth resulting in development of new subdivisions, roadways and recreational areas. Alberta's Species at Risk program has provided funding and in-kind staff support toward the development and implementation of a rattlesnake conservation plan for the city. This has provided improved responses to citizen's complaints regarding rattlesnakes, a revised translocation protocol, establishment of new rattlesnake habitat, and information/education initiatives. This work is ongoing and involves cooperation with the City of Lethbridge, the University of Lethbridge, local businesses and residents.

Wind Energy and Wildlife

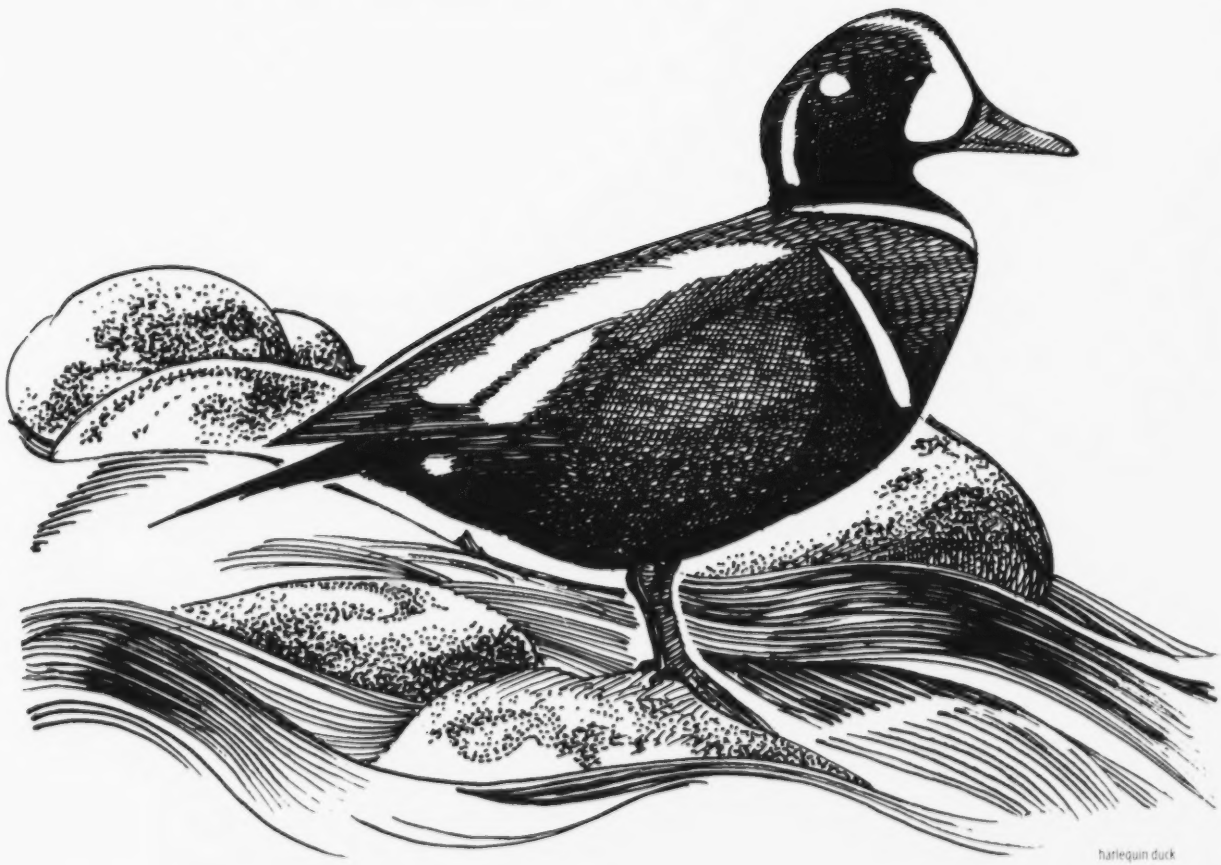
Wind energy projects have become common throughout southwestern Alberta. Although wind farms are widely acknowledged as providing "green" energy, there are problems associated with the direct mortality they may cause to birds and bats. Alberta's Species at Risk Program has provided funding to the University of Calgary to support research for improving our understanding of the seriousness of these concerns and toward development of mitigation measures to reduce impacts.

North American Long-billed Curlew Inventory

Alberta's Species at Risk Program carried out an inventory for long-billed curlew in Alberta in 2001 (See Species at Risk Report No.25). The protocol developed was used by United Stated Fish and Wildlife Service as the basis for designing a North American Continental Survey for long-billed curlew, which was carried out over a two-year period (2004-2005). Surveying of the Alberta portion of the species range was done through a collaborative effort involving United States Fish and Wildlife and Alberta's Fish and Wildlife observers. The Alberta and continental surveys showed that Alberta supports a high proportion of the continental population for this grassland-associated species.



long-billed curlew



harlequin duck

SPECIES OF SPECIAL CONCERN CONSERVATION MANAGEMENT PLANNING

Management and monitoring is required for some species that are not *Endangered* or *Threatened*, but that have characteristics that may make them particularly sensitive to human activities or natural events. Following a detailed status evaluation by the Scientific Subcommittee and recommendation by the Endangered Species Conservation Committee (ESCC), these species can be designated as Species of Special Concern by the Minister.

Conservation management plans for Species of Special Concern must be developed within three years (unless otherwise specified) of Ministerial approval of the provincial status recommendation. These management plans are intended to be a resource tool for the Fish and Wildlife Division and for provincial and regional land management agencies. The plans are designed to provide guidance for species management and influence land management decisions that will enhance the conservation of target species and their habitat.

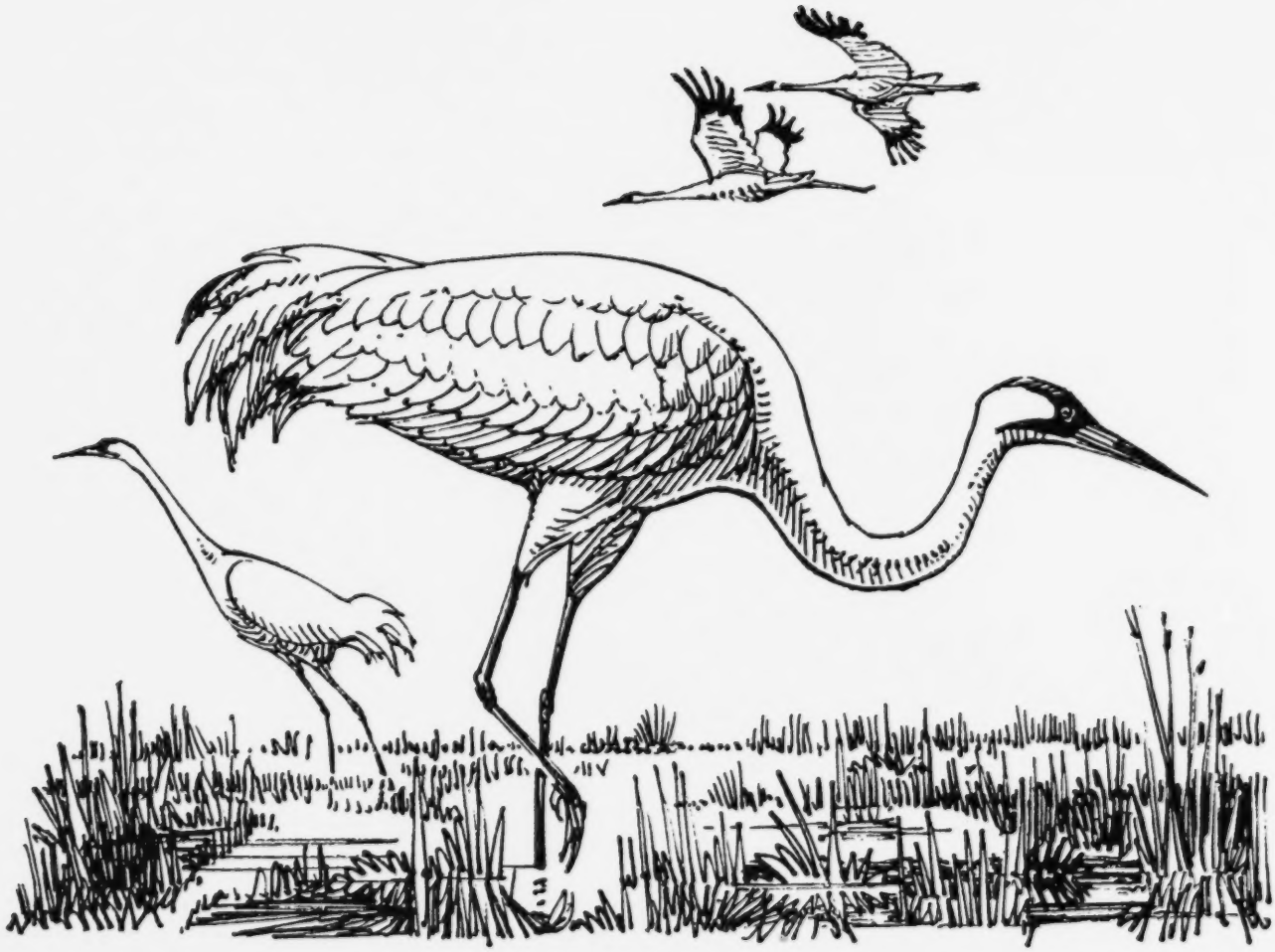
Management plans are intended to be concise documents, with a focus on recommendations and actions. Plans contain a brief overview of background information including rationale for the species listing, threats to populations and habitat, and a summary of inventory efforts. Goals, objectives and recommended actions are identified. Actions can encompass inventory and monitoring needs; habitat protection and conservation; management activities; and other considerations such as public education initiatives.

Management plans may also identify current government policies, guidelines and practices that could be improved to minimize impacts on species' population or habitat. Further, Species of Special Concern Management Plans could also be integrated into those policies where there is an opportunity. Recommendations may address improvement of existing policies and guidelines, or development of new ones to ensure the long-term maintenance of a species and its habitat.

Draft plans are prepared by a staff lead and may be circulated for technical and peer review to species experts and other government departments. Plans may also be distributed to stakeholders for review. Final drafts of the management plans are submitted to the Director of Wildlife Management (Director) for review and approval. The Director may circulate the plans to other directors at his discretion. Upon approval by the Director, plans will be made available to partners, the public, and other relevant agencies, and will be posted on the departmental website. Finalized plans will also be presented to the ESCC.

Management plans are dynamic documents that may be amended as conditions require. They will be subject to a brief, annual review by FWD personnel and updated accordingly. An in-depth review will occur within five years of completion of an initial plan.

To date, draft conservation management plans have been developed for three Species of Special Concern – Sprague's pipit, long-toed salamander and long-billed curlew – and for one Data Deficient species, the prairie rattlesnake. Additional plans in preparation include the barred owl, white-winged scoter, harlequin duck, arctic grayling, Cape May warbler, and bay-breasted warbler.



whooping cranes

recovery planning

A small number of native species have been identified as being at risk of extinction or extirpation in Alberta. These species are designated as *Endangered* or *Threatened* under the provincial *Wildlife Act*, and are the focus of recovery planning and implementation programs. Establishing recovery programs for At Risk species reflects Alberta's commitment to the Accord for the Protection of Species at Risk, the *National Framework for the Conservation of Species at Risk*, and requirements established under Alberta's *Wildlife Act* and the federal Species at *Risk Act* (*SARA*).

The Alberta recovery program has the following overarching goal:

To maintain or restore species identified as *Threatened* or *Endangered* to viable, naturally self-sustaining levels within Alberta.

At the direction of the Minister of Sustainable Resource Development, the Director of Wildlife Management, (the Director), establishes a provincial recovery team for each *Threatened* and *Endangered* species. Recovery teams are composed of species experts, interested or affected stakeholders, and groups with management responsibility for the species and its habitat. They may include representatives of conservation organizations, industry, landowners, resource users, aboriginal organizations, academia, government agencies, and other groups. The Fish and Wildlife Division is the coordinating agency and identifies a lead staff member for the team, provides operational support for the team, and ensures ongoing integration with other national or jurisdictional recovery programs. The team reports to the Minister through the Director, who acts as the Minister's representative.

The team produces a draft provincial recovery plan within one year for *Endangered* and two years for *Threatened* species. All plans include background information that highlights the species' biology, population trends, and threats to the species and its habitat; a recovery section that identifies recovery goals and measurable objectives; strategies that address threats and guide recovery actions; and an action plan. The action plan outlines specific actions necessary to achieve the recovery goals; associated timelines for initiation or completion of those actions; and organizations that will be involved with implementation. Recovery plans for species that are also listed federally are developed to meet requirements under *SARA*.

Once a draft recovery plan is completed it is submitted to the Endangered Species Conservation Committee (ESCC) and the department for review. Review by the ESCC constitutes the public review process, as the multi-disciplinary committee represents a broad range of interests, however additional public consultation may be done for some plans. During the departmental review the Deputy Minister may consult other departments on the content of the draft recovery plan. Departmental comments, and recommendations from the ESCC on approval of the plan, are forwarded to the Minister. Plans accepted and approved for implementation by the Minister are published as part of the recovery plan report series. Following approval, recovery plans are published in print and online as part of the Alberta Species at Risk Recovery Plan series.

It is anticipated that agencies and organizations represented on the recovery team, and identified in the action plan, will be involved with the implementation of recovery actions. However, depending on species-specific circumstances, it may be necessary to initiate recovery actions while the recovery planning process is still in progress.

The Fish and Wildlife Division and the recovery team provide ongoing coordination and assessment of recovery implementation. Recovery plans are "living" documents and the team may revise the action plan as conditions change or circumstances warrant. The team reports annually to the Director on recovery progress and on any changes made to the action plan. Recovery plans are assigned a lifespan (typically five years), and are revised and updated by the team at the end of that period.

The following sections highlight the progress for several *Threatened* and *Endangered* species for which recovery planning is underway.

Lake Sturgeon

Lake sturgeon (*Acipenser fulvescens*) was approved for listing as a *Threatened* species in Alberta in 2003, and officially listed in 2007. The provincial recovery team for lake sturgeon is currently being formed. First, a national recovery strategy will be developed and Alberta will contribute a provincial action plan under that

strategy. Fish and Wildlife staff have attended two workshops on lake sturgeon that have been hosted by the Department of Fisheries and Oceans.

Small-flowered Sand-verbena

The provincial recovery team for small-flowered sand-verbena (*Tripterocalyx micranthus*) will be formed in 2008 and the national recovery strategy is also due in 2008. At the time of publication, Alberta Sustainable Resource Development was finalizing the placement of protective reservations on all known occurrences of this species on Crown land. Additionally, population monitoring efforts were initiated in 2007 by Fish and Wildlife, Environment Canada, and the oil and gas industry. These efforts will help clarify locations of this species throughout southern Alberta. Monitoring and management of industrial activity in important small-flowered sand verbena habitats will be ongoing.

Bison

The bison (*Bison bison*) has been protected as an *Endangered* species under Alberta's *Wildlife Act* since 1987. The *Endangered* status applies within the boundaries in northwestern Alberta described under the *Wildlife Regulation*. The ESCC recommended in 2004 that all free-ranging bison be listed as *Endangered* across the province. The Minister responded that the issue would require stakeholder consultation and would notify them of a final decision. Bison disease management needs to be resolved before moving ahead with provincial recovery planning; an Assistant Deputy Minister's Committee has been reviewing the disease issue in Alberta. A national recovery strategy has been drafted to comply with the Canadian *Species at Risk Act*, and will undergo jurisdictional review.

Stonecat and St. Mary Shorthead Sculpin

The St. Mary shorthead sculpin (provisionally *Cottus bairdi punctulatus*) and stonecat (*Noturus flavus*), were approved for listing as *Threatened* species in 2004. A broad-based multi-species recovery approach is being developed that will set goals, objectives, strategies, and management actions needed to guide the recovery of these two species, as well those of the western silvery minnow, over the next five years. However, recovery plans will be written for each species. The plan for the western silvery minnow is complete and has been reviewed by the ESCC. The planning for both the stonecat and the St. Mary shorthead sculpin is well underway. Both recovery plans are anticipated to be ready for the ESCC review by summer 2008.

Short-horned Lizard

The short-horned lizard (*Phrynosoma hernandesi*) has been designated as an *Endangered* species in Alberta since 2006. Formation of a recovery team is underway and protective reservations have been established to protect important short-horned lizard habitat within the Manyberries Badlands population. The Fish and Wildlife Division and the Lands Division are working together to ensure the needs of the short-horned lizard are incorporated into industrial dispositions in relevant habitat. Ongoing population monitoring continues as well, mainly by pre-screening of industrial activities, but also through the MULTISAR program (see page 27).

Tiny Cryptanthe

Tiny cryptanthe (*Cryptantha minima*) was recommended to be designated as an *Endangered* species in Alberta in 2005. It was formally listed in 2007. The recently formed provincial recovery team will begin developing a recovery plan in early 2008. At the time of publication, Alberta Sustainable Resource Development was finalizing the placement of protective reservations on all known occurrences of this species on Crown land. Population monitoring efforts were initiated in 2007 by Fish and Wildlife, Environment Canada, and the oil and gas industry. These efforts will help clarify locations of this species throughout southern Alberta and may also be used for an updated status report in the near future. Monitoring and management of industrial activity in important tiny cryptanthe habitats will be ongoing.

Ferruginous Hawk

The ferruginous hawk (*Buteo regalis*) was designated as an *Endangered* species in November 2006. The recovery team was formed in the spring of 2007, and a draft plan has now been written and is undergoing consultation. The Ferruginous Hawk Recovery Plan is on schedule for presentation to the fall 2008 Endangered Species Conservation Committee meeting. If recommended by the ESCC, the plan will then be forwarded to the Minister's office for approval.

Westslope Cutthroat Trout

The Westslope cutthroat trout (*Oncorhynchus clarki lewisi*) was assessed by the ESCC in June 2007, and the committee recommended that the species be listed as *Threatened*. The Minister approved this recommendation in December

2007, and measures to have this species added to Schedule 6 of the *Wildlife Regulation* are underway. Extensive genetic analyses to determine (1) the extent of hybridization between the westslope cutthroat trout and rainbow trout, and between westslope cutthroat trout and Yellowstone cutthroat trout, and (2) population subdivision among pure populations, have been underway since 2006. A recovery team will be initiated in 2008.

Mountain Plover

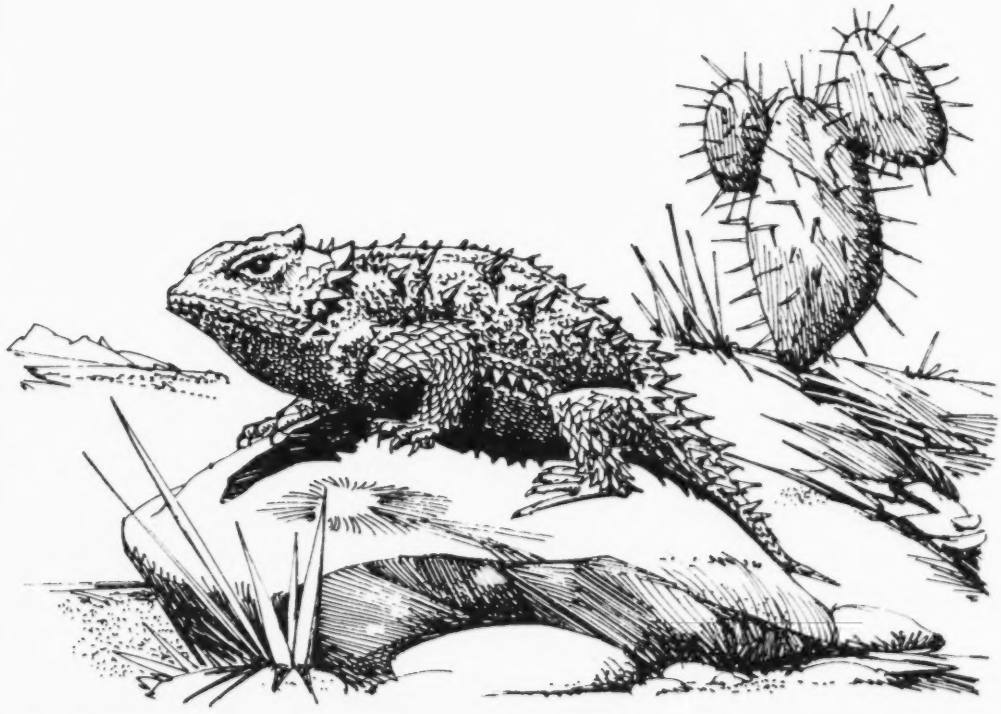
Mountain plover (*Charadrius montanus*) was recommended to be an *Endangered* species in Alberta in 2004, and has been protected under Alberta's *Wildlife Act* since 2006. The national *Recovery Strategy for the Mountain Plover in Canada (2006)* is currently available on the *Species at Risk Act* (*SARA*) Public Registry. Provincial representatives will have input into the action plan for Alberta, to be developed under the national recovery strategy.

Whooping Crane

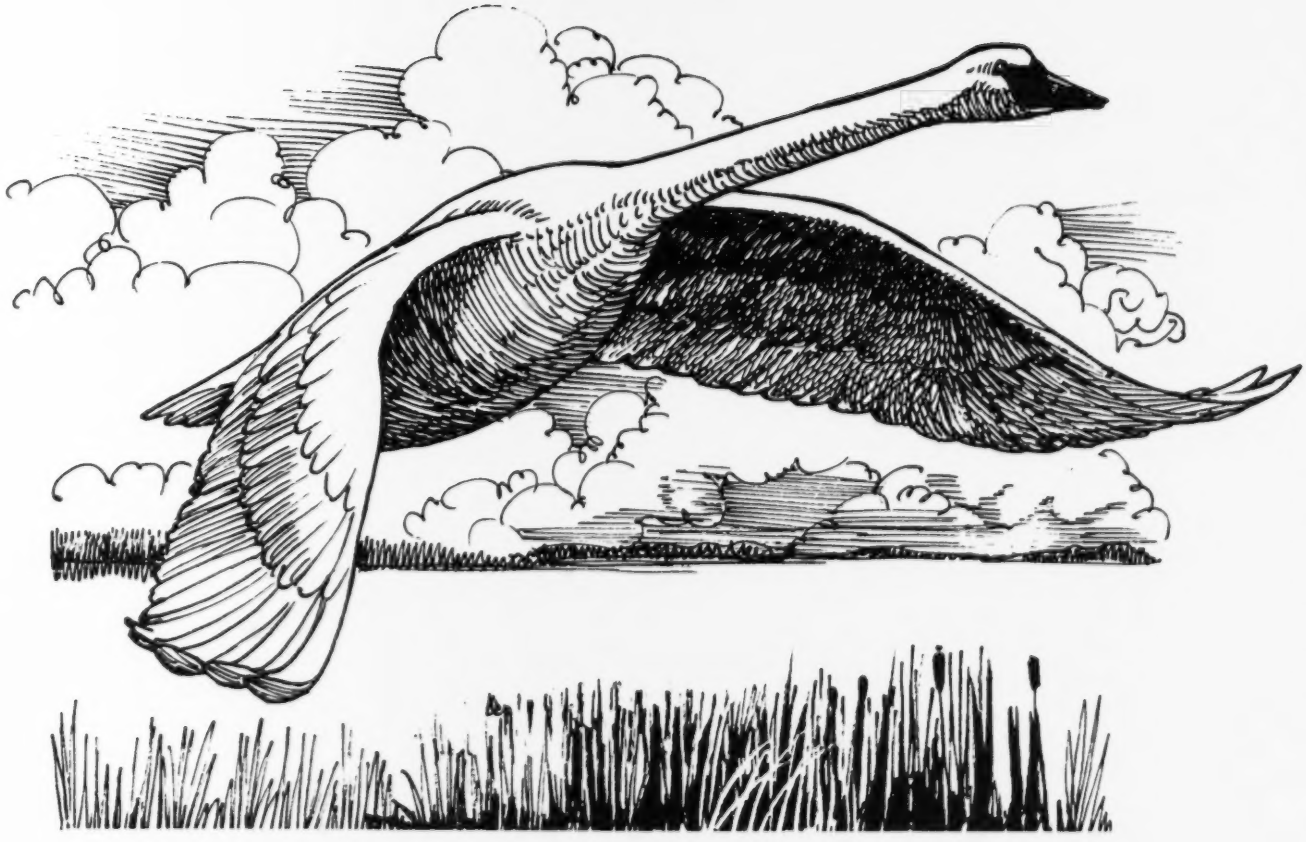
The whooping crane (*Grus americana*) has been protected as an *Endangered* species under Alberta's *Wildlife Act* since 1987. Alberta participates on the national Whooping Crane Recovery Team. A draft of the recovery strategy was reviewed provincially, and the strategy was posted on the *SARA* Public Registry in late 2007.

Banff Springs Snail

The Banff Springs snail (*Physella johnsoni*) was designated as *Endangered* in Alberta in 2004. This species is found only in one place in the world – the thermal springs on Sulphur Mountain in Banff National Park, Alberta. Therefore, recovery planning for this species has been carried out by the federal government. The national *Recovery Strategy for the Banff Springs Snail* (Physella johnsoni) *in Canada* (2007) is currently available on the *SARA* Public Registry.



short-horned lizard



trumpeter swan

WESTERN BLUE FLAG RECOVERY IMPLEMENTATION

Implementation Leader: **Richard Quinlan**

Background and Activities

In 2001 a recovery process was initiated for western blue flag following Ministerial approval for listing as a *Threatened* species under Alberta's *Wildlife Act*. In April 2002, the Alberta recovery plan for western blue flag was approved. The western blue flag conservation program was developed through the *Maintenance and Recovery Plan for Western Blue Flag in Canada*. The conservation plan operated during the period 2001 to 2005 to provide habitat management to ensure long-term maintenance of the species in its sole Canadian habitat, near the town of Cardston.

Conservation and Stewardship

Inventories of the western blue flag sites were carried out, with an overall summary provided in a Species at Risk Program Report (No. 85). Seven of the ten landowners who have western blue flag on their land have participated in the western blue flag conservation program. Each of these participants was provided with a western blue flag management plan for their property and provided with consultation and assistance to implement the plan. Partner funding was provided for development of improvements to enhance management of western blue flag. These improvements included permanent and temporary fences, water improvements to redistribute cattle, and removal of competing weeds. In addition to the initiatives on private land there has been ongoing consultation with Alberta Parks to encourage pro-active conservation of the western blue flag sites at Police Outpost and Park Lake provincial parks. Measures being implemented by Alberta Parks include fencing and signage to dissuade human use of the areas, and mechanical removal of invasive species around the sites.

Species Status

During this western blue flag conservation program, the knowledge regarding population size and distribution dramatically increased. Some members of the community who had participated as recovery team members encouraged neighbours to report the presence of western blue flag on their land. This led to annual surveys showing that the population was approximately 10 times greater than was known at the time of the decision to list western blue flag as a *Threatened* species. Soon after, a decision was made to update the detailed status report for western blue flag. This was completed in June 2005 and the new information was used for a review of species' status, leading to a decision to downlist the species to a Species of Special Concern. This action demonstrated the effectiveness of the voluntary cooperative approach used in the western blue flag conservation program.

Looking Ahead

Western blue flag was established as a Species of Special Concern by a Ministerial approval in December 2005, which effectively downlisted the species from its previous designation as an Alberta *Threatened* species. In practical terms, the decision resulted in the western blue flag recovery plan becoming a very detailed management plan, rather than a recovery plan. Other implications included the completion of the western blue flag conservation program, upon an understanding that conservation actions may be pursued through multi-species approaches as part of the MULTISAR project.

It is recommended that western blue flag be revisited for monitoring as part of the 2009-2010 Species at Risk Program work plan. The existing habitat plans and inventory reports allow for replication surveys to be carried out in order to evaluate the success of conservation efforts and the response of the subpopulations at the various sites where they occur.

At the time of this report, the national status of western blue flag was *Threatened* under the federal *Species at Risk Act*. It is recommended that COSEWIC re-evaluate this status. Should the species remain as a *Threatened* species, then the Alberta Species at Risk Program should upgrade the existing plan to qualify as a national recovery plan.

REGION:
Prairies, Southern Rockies

TARGET SPECIES:
Western Blue Flag (*Iris missouriensis*)

***WILDLIFE ACT* CATEGORY:**
None

PROVINCIAL GENERAL STATUS:
Sensitive

COOPERATING AGENCIES

Alberta Conservation Association, Environment Canada's Habitat Stewardship Program, and all agencies associated with the Alberta Western Blue Flag Recovery Team

For more information contact:

Brandy Downey (*see page 7*)

Related Species at Risk report: No. 85
Alberta Species at Risk Recovery Plan: No. 1

PEREGRINE FALCON RECOVERY IMPLEMENTATION

Implementation Leader: **Gordon Court**

REGION:
Prairies, Waterways, Southern Rockies, Woodlands

TARGET SPECIES:
Peregrine Falcon (*Falco peregrinus*)

***WILDLIFE ACT* CATEGORY:**
Threatened

PROVINCIAL GENERAL STATUS:
At Risk

Background and Activities

In 2000, the peregrine falcon was downlisted from *Endangered* to *Threatened* in Alberta in recognition of an increasing population, a measured reduction in pesticide residues in tissues, and demonstrated improvements in reproductive performance. Along with this change in listing, the Minister accepted an Initial Conservation Action Statement from the Endangered Species Conservation Committee that recommended further recovery actions in the province. This included the formation of a multi-stakeholder Recovery Team whose role is to advise the Minister on all matters relating to peregrine falcon conservation in the province, and preparation of a recovery plan. The *Alberta Peregrine Falcon Recovery Plan* was produced to embrace the objectives of the Ministerial Initial Conservation Action Statement.

Recovery goals for Alberta are based on population, pesticide contaminant, and productivity targets derived from historical data and on an understanding of threshold levels for "healthy" peregrine populations. These goals are as follows:

(1) to achieve a well-distributed, average population of 70 territorial pairs of peregrine falcons in Alberta by 2010;

(2) to monitor pesticide contaminants in non-viable peregrine falcon eggs in the province to ensure that geometric mean levels of the residue DDE remain below 7.5 mg/kg (parts per million) over the long-term; and

(3) to employ all management techniques possible to achieve a mean fledging rate of greater than 1.25 young/territorial pair/year in the province over the long-term.

Population and Pesticide Monitoring

Alberta participated in the last national peregrine falcon survey in 2005. In that year, a total of 52 nesting pairs were counted. New pairs continue to be detected each year. DDE residues in eggs collected during the last decade average well below critical level for successful reproduction. Fledging rates are well above 1.25 young/territorial pair/year.

Information and Education

Much progress has been made in educating the public about the conservation of peregrine falcons. Several presentations on this species and its recovery program are made each year to both technical and non-technical audiences. Additionally, owners and operators of industrial sites used by nesting peregrine falcons are educated in ways to minimize activities that may negatively affect their recovery, and generally these operators are eager to be involved in the conservation program.

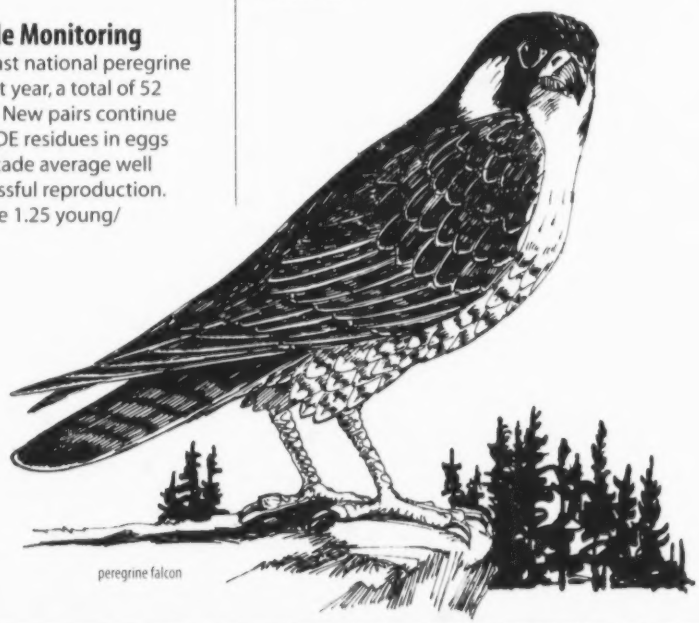
Research and Administration

The Fish and Wildlife Division has been actively participating in a Canadian Wildlife Service-led project whereby certain individual peregrines have been fitted with satellite telemetry equipment and are tracked as they make their annual migration to and from their wintering grounds. This research was repeatedly featured by Edmonton and Calgary media outlets in the spring of 2007 in particular, and became a popular story for the public.

Other initiatives are ongoing, including the continued entry of peregrine falcon nesting information into the Fish and Wildlife Management Information System (FWMIS). The Alberta Species at Risk Program staff continue to participate on the national recovery team.

Looking Ahead

The next national survey for peregrine falcons will occur in 2010. A variety of agencies will continue to be invited to participate in the funding and implementation of recovery initiatives. Alberta will continue to participate in national recovery initiatives.



peregrine falcon

COOPERATING AGENCIES

Alberta Conservation Association, Canadian Wildlife Service, North American Waterfowl Management Plan, and all agencies associated with the Alberta Peregrine Falcon Recovery Team

For more information contact:

Gordon Court (*see page 7*)

Alberta Species at Risk Recovery Plan: No. 3

ORD'S KANGAROO RAT RECOVERY IMPLEMENTATION

Implementation Leader: **Arlen Todd**

REGION:
Prairies

TARGET SPECIES:
Ord's Kangaroo Rat (*Dipodomys ordii*)

***WILDLIFE* ACT CATEGORY:**
Endangered

PROVINCIAL GENERAL STATUS:
At Risk

Background and Activities

The Ord's kangaroo rat was listed as *Endangered* under Alberta's *Wildlife Act* in May 2002. This designation was based on a small breeding population, a dramatic within-year fluctuation in population size, geographic isolation and a restricted habitat. Nationally, the status of the Ord's kangaroo rat was uplisted from Special Concern to *Endangered* in 2006.

The Alberta Ord's Kangaroo Rat Recovery Team, initiated in 2003, completed a recovery plan that was formally approved in December 2005, with 2004-2005 being the first year of coordinated recovery efforts in the plan. The goal of the recovery plan is to ensure a viable, naturally self-sustaining population of Ord's kangaroo rats in Alberta such that this species is no longer at risk of extinction in the province. Strategies for the recovery of Ord's kangaroo in Alberta focus on:

1) minimizing any negative effects of human land uses on population size and fluctuations, and
2) conserving, and where necessary, enhancing the net quantity and quality of the habitat for the species in Alberta. Specific recovery strategies and progress made toward each are described below.

Population Conservation and Management, Research

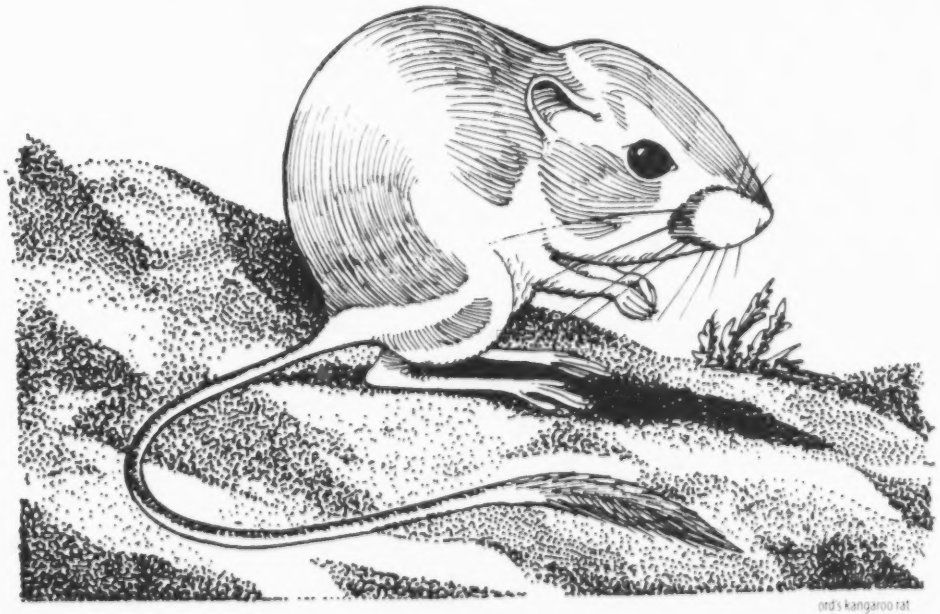
- Research on kangaroo rat populations in anthropogenic and natural habitats showed that populations in anthropogenic habitats are not as viable as those in more natural habitats. Anthropogenic habitats (those altered by humans) appear to represent population "sinks" whereby kangaroo rats using these features suffer higher mortality and/or reduced recruitment compared to kangaroo rats in natural habitats.
- A large dietary study was completed and documented very significant differences in the diet of Ord's kangaroo rats in natural and anthropogenic habitats.
- Range-wide monitoring to determine population size, distribution and annual (spring-fall) and inter-annual fluctuations was completed on 34 sites (17 natural, 17 anthropogenic). More than 500 kangaroo rats were captured and marked in the monitoring efforts, and more than 100 incidental observations made.
- A detailed protocol for population monitoring was finalized and published (Alberta Species at Risk Report No. 113)
- Potential sites for translocations were assessed for spring 2008, and preparation of a protocol for translocations commenced.

Habitat Conservation and Management, Research

- A standardized habitat monitoring protocol was developed and implemented.
- Identification of essential habitats was completed in years 2 and 3, and further refined in year 4.
- A multi-party project to monitor sand dunes and experimentally reactivate by means of both prescribed fire and grazers commenced in year 3, with initial work primarily in the Suffield National

COOPERATING AGENCIES

CFB Suffield, EnCana Corporation, Environment Canada's Interdepartmental Recovery Fund, Geological Survey of Canada, Royal Alberta Museum, University of Calgary, University of Lethbridge, various landowners, and all agencies associated with the Alberta Ord's Kangaroo Rat Recovery Team



ord's kangaroo rat

For more information contact:

Arlen Todd (*see page 7*)

Related Species at Risk report: No. 113

Alberta Species at Risk Recovery Plan: No. 5

Wildlife Area (SNWA). Within six weeks of burns, surface sand transport has been stimulated at all nine sites, with erosion being substantive at two.

- Selected Recovery Team members participated in the Environmental Assessment of EnCana's proposed shallow gas infill project in the SNWA, including development of a comprehensive identification of essential habitat for the Ord's kangaroo rat in the SNWA.
- Selected Recovery Team members participated in the ongoing review by Sustainable Resource Development (SRD) of setback distances and activity periods for sensitive wildlife species (including the Ord's kangaroo rat) in the Prairies Management Area .

Education and Information

- Presentations focusing in whole or in part on the Ord's kangaroo rat recovery were given each year to a variety of groups, including SRD's Species at Risk staff; SRD managers and staff, and students.
- The recovery program and plan was promoted to stakeholders and public at all possible opportunities.
- Media interviews/articles were held with three outlets ("Fast Forward", Calgary; CBC Saskatchewan; "Prairie Post", Swift Current) in year 4.

Plan Management and Administration

- A total of 15 meetings of the full Recovery Team have been held since its inception.
- Ord's kangaroo rat data were entered into several key databases, including the Fisheries and Wildlife Management Information System (all years).

Looking Ahead

At the time of printing, the existing recovery plan is late in the fourth year of its five-year period. Accordingly, in-depth review and evaluation of the plan has begun, with a view to preparing a new plan for the following period of years (2009-2010 onwards). Key activities in inventory, habitat conservation and management (including dune reactivation) will also continue in the year ahead, along with translocations of Ord's kangaroo rats at several sites, for the first time ever. Progress with some initiatives for development and implementation of Beneficial Management Practices for the Ord's kangaroo rat, and several educational and recognition initiatives, is expected to increase in the coming years. Efforts are planned in 2008-2009 to broaden the funding base and partnerships to include the Beneficial Management Practices and educational initiatives.

NORTHERN LEOPARD FROG RECOVERY IMPLEMENTATION

Implementation Leader: **Dave Prescott**

REGION:
Prairie

TARGET SPECIES:
Northern Leopard Frog (*Rana pipiens*)

***WILDLIFE* ACT CATEGORY:**
Threatened

PROVINCIAL GENERAL STATUS:
At Risk

Background and Activities

The northern leopard frog was once abundant and widely distributed throughout central and southern Alberta. Abrupt and unexplained population declines occurred throughout many parts of the species' range in the late 1970s and early 1980s. Populations have remained at a low level in Alberta since that time.

The northern leopard frog was declared to be a *Threatened* species in Alberta in 1996, and this status was reaffirmed in 2004. Later that year, the Alberta Northern Leopard Frog Recovery Team and an associated technical advisory committee were established. The resulting *Alberta Northern Leopard Frog Recovery Plan 2005-2010* was approved for implementation in late 2005. The plan aims to achieve well-distributed and self-sustaining populations of leopard frogs in Alberta. The recovery team recognizes that humans share the land and water with leopard frogs, and that recovery efforts must be conducted in partnership with landowners, land users, and other interested agencies.

This summary covers the fiscal years of 2004-2005 to 2007-2008. In the first fiscal year, most of the preparatory work for the recovery team and plan was completed. The subsequent three years represent the first three seasons of plan implementation.

Population and Habitat Monitoring

First, a thorough assessment of the size, distribution, and local threats to northern leopard frog populations in Alberta was conducted to prioritize sites for management. In 2005, a list of all known leopard frog sites in the province was compiled and prioritized. Biologists then visited 177 of these sites (almost half of all historical sites), and conducted a standardized survey to quantify the number of frogs per hour of survey effort. Key results include (see Kendell *et al.* 2007 for complete details):

- Confirmation of frogs at 41% of surveyed sites. Populations were relatively small and isolated from each other. Only 56% of sites known to be occupied in 2000 were occupied in 2005, suggesting further decline of provincial populations in recent years.
- Only 5% of unoccupied sites were thought to have high potential for reintroduction.
- Less than 5% of 172 landowners contacted were disinterested or negative about frogs.
- Over 60% of occupied sites were threatened by human activities, with intensive cattle grazing being the most prevalent threat.

Since 2005, several new leopard frog sites have been found through contact with the public, and from surveys at sites where suitable habitat was known to occur. Of particular interest is the rediscovery of frogs in the lower reaches of the Battle River drainage in 2007, where populations were thought to be extirpated.

Habitat Protection and Management

Leopard frogs are sparsely distributed in Alberta, and there are relatively few robust populations remaining. The recovery team therefore places a high priority on protecting all known frog habitats in the province from human disturbance. Informing landowners is one of the most effective tools for protecting habitat (see Information and Outreach, below). Two other tools have been employed to protect key frog habitats in the province:

- Stewardship activities –In 2006 and 2007, four stewardship projects for leopard frogs were completed. All of these including fencing of key breeding wetlands, and two also included the provision of off-site watering systems to landowners. At least one new project is planned for 2008.
- Industrial Referrals – Consultations with developers planning industrial facilities around several leopard frog sites resulted in elimination or minimization of disturbance to breeding or wintering areas.

Research

Three main research activities have been undertaken to date:

- Analyses of the genetic diversity of frogs at the University of Alberta suggests that frogs in Alberta have relatively low genetic diversity, and that frogs from different watershed have different genetic profiles. This research, which is nearing completion, will be used to guide future translocations of frogs.
- Surveillance for amphibian diseases has shown that several populations of leopard frogs in Alberta are infected with chytrid fungus. Confirmation of this disease has profound implications for translocations of frogs. Results from an additional 30 sites will be known in 2008.
- Comparison of habitat attributes at occupied and unoccupied frog sites was used to identify predictors of leopard frog habitat. GIS software was then used to predict the location of suitable habitats in the province. This information will be used to identify unsurveyed sites where frogs may be present, and to locate potential reintroduction sites.

COOPERATING AGENCIES

Alberta Conservation Association, Alberta Human Resources, Alberta Public Lands and Forests Division, Alberta Tourism, Parks and Recreation, ConocoPhillips Canada, Environment Canada Habitat Stewardship Program, Human Resource Development Canada, Nature Conservancy of Canada, North American Waterfowl Management Plan, Parks Canada, TD Friends of the Environment, private landowners and lessees, and all agencies associated with the Alberta Northern Leopard Frog Recovery Team

For more information contact:

Dave Prescott (*see page 7*)

Related Species at Risk report: No. 78
Alberta Species at Risk Recovery Plan: No. 7

Information and Outreach

Information and outreach activities inform the public, industrial developers, and others about the conservation and management of leopard frogs in Alberta. The main focus of these activities is on preventing degradation or loss of habitat, gaining public assistance with finding new leopard frog populations, expanding awareness of conservation issues related to leopard frogs, and gaining support and participation in management initiatives. Several initiatives have been completed or are underway:

- Development and distribution of a "Have You Seen This Frog?" poster to solicit sightings of northern leopard frogs in the province. Several new frog locations have been secured through the campaign.
- Production of a northern leopard frog postcard in the provincial species at risk postcard series.
- Completion of an updated northern leopard frog brochure, with partnership from a major oil and gas developer (ConocoPhillips).
- Presentations and articles on frogs and their management in a variety of newspapers, newsletters, and other media.

Reintroductions

Several reintroductions have been attempted in Alberta and elsewhere in western North America over the past decade, with mixed success. Based on knowledge gained from these attempts, along with new information on the distribution and abundance of frogs in the province, habitat needs and spatial distribution of available habitat, the genetic composition of extant populations, and the occurrence of disease, the reintroduction program was reinitiated in 2007. A detailed strategy has been prepared to guide these reintroductions (Kendell and Prescott 2007), and careful study over the past three years has identified several candidate source sites and relocation areas. The recovery plan aims to conduct reintroductions at 10 sites over the next few years. Introductions began at three of these sites in 2007.

Looking Ahead

The recovery program for the northern leopard frog is entering a critical and challenging phase. Introductions began in the spring of 2007, and will continue at least until the completion of the current recovery plan in 2010; however, the success of these reintroductions is not assured, given challenges finding enough source material for transplants, as well as manpower and funding constraints, and numerous technical and logistical considerations. In addition, the recently discovered presence of chytrid fungus is potentially a serious setback to the conservation of leopard frogs in Alberta. Increased disease surveillance in 2007 and beyond will help biologists gauge the threat of this pathogen in Alberta, and the degree that it factors into reintroduction efforts.

Protection of key habitats will continue, as will the dissemination of information the public, industry, landowners, non-government organizations and others about leopard frogs and their conservation in Alberta. In addition, we will seek new partners and funding sources to support our management initiatives.

GREATER SAGE-GROUSE RECOVERY IMPLEMENTATION

Implementation Leaders: **Dale Eslinger** and **Joel Nicholson**

REGION:
Prairies

TARGET SPECIES:
Greater Sage-grouse
(*Centrocercus urophasianus*)

***WILDLIFE* ACT CATEGORY:**
Endangered

PROVINCIAL GENERAL STATUS:
At Risk

Background and Activities

The greater sage-grouse is at the northern limit of its continental range in Alberta. Silver sagebrush (*Artemesia cana*) provides most of the diet of Alberta adult birds. Sage-grouse range is currently limited to the southeastern corner of the province and represents only about 10% of historic range in Alberta. The Alberta greater sage-grouse population has declined 66%-92% over the last 30 years. Currently there are only 300-400 birds remaining in the province. Previous research in Alberta suggests that the population decline was a result of poor recruitment. Poor chick survival may be a result of inadequate quality of brood rearing habitat. Numerous other factors have also been implicated for affecting the sage-grouse population.

The greater sage-grouse has been a federally listed *Endangered* species since 1998. This species was also provincially listed as *Endangered* under Alberta's *Wildlife Act* in 2000. In December 2005, the *Alberta Greater Sage-Grouse Recovery Action Plan* was approved by the Minister of Sustainable Resource Development. This plan was the result of a local community-based collaborative planning process involving various affected stakeholder groups.

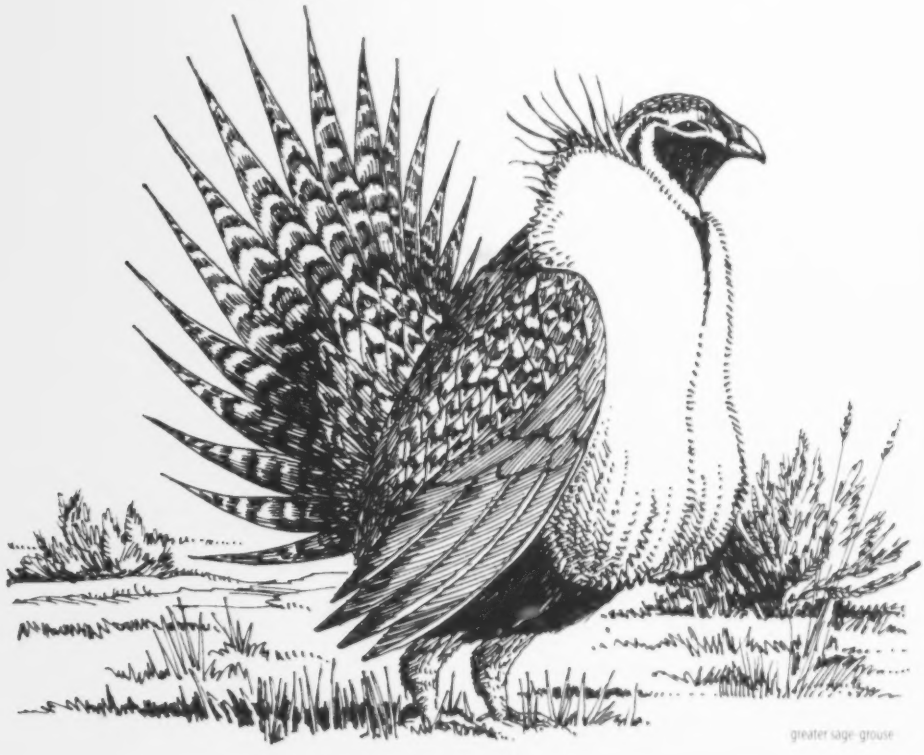
Population Monitoring

An annual inventory of birds attending the known active leks occurs at the end of April during peak attendance. The abandoned leks are also monitored in the event of re-patriation by the birds. At this time of the year, breeding of the females is mostly completed, and the juvenile males are tolerated by the dominant males at each lek site. Hence, peak male attendance can be inventoried. The male lek attendance is used as an index of the total population. The lek surveys have occurred sporadically since the late 1960s and annually from 1994 to the present.

Habitat Protection and Management

The *Alberta Greater Sage-grouse Recovery Action Plan* (2005) prescribes a number of conservation actions presently underway. These are described in more detail below.

- A land use simulation model is nearing completion. This model is an effort produced through collaboration of a fairly large group of resource managers and grouse experts. Nine sage-grouse experts from various agencies in Montana, Utah, Colorado, Wyoming and Alberta were brought together in a workshop held in Medicine Hat during March 28-30, 2006.



greater sage-grouse

COOPERATING AGENCIES

Sustainable Resource Development (Lands Division and Fish and Wildlife Division), Alberta Energy, Parks Canada, Alberta Conservation Association, University of Calgary, University of Alberta, and all agencies associated with the Alberta Sage Grouse Recovery Action Group

For more information contact:

Joel Nicholson (see page 7) or

Dale Eslinger
(Dale.Eslinger@gov.ab.ca)

Alberta Species at Risk Recovery Plan: No. 8

Related Species at Risk Reports: No. 19, 56

This session was led by Dr. Brad Stelfox (Forem Technologies, Calgary). The model construction was coordinated and recently completed by the Miistakis Institute at the University of Calgary. The model will assist with providing a tool for land-use decision support.

- In 2007, a Memorandum of Understanding was signed by Alberta, Montana and Saskatchewan regarding the trans-boundary wildlife concerns in the northern sage steppe. This agreement provides for data sharing, coordination of research and management in southeast Alberta, northeast Montana and southwest Saskatchewan. The MOU has been sanctioned by the Western Association of Wildlife Agencies. Sage-grouse were one of the key species of concern identified under the agreement.
- A University of Alberta PhD student has nearly completed her dissertation demonstrating spatial variation in genetics of sage-grouse. This work demonstrates the linkage of the gene pool from Alberta through Montana.
- The World Wildlife Fund (Northern Great Plains Office) is collaborating with the University of Calgary to develop a connectivity model for the trans-boundary area. Connectivity of habitat is viewed as very important to link Alberta's sage-grouse with core populations in northeast Montana.
- GIS specialists from Alberta, Montana and the World Wildlife Fund have recently entered into discussions around data sharing.
- Alberta Energy and Petro-Canada (through the Alberta Conservation Association) have funded a project to compile the state of knowledge on cumulative effects for human activities on sage-grouse. A graduate student from the University of Calgary is conducting the research. The project is in support of an internal Government of Alberta (GOA) stakeholder group that will be convened in the near future to establish agreement on conservation design for greater sage-grouse in Alberta.

Research

A number of research activities have been undertaken to further investigate various factors that could be of influence to sage-grouse:

- Water management and silver sage-brush
- Sage-brush mapping of the first 42 townships in southeast Alberta
- Beneficial Grazing Management Practices to Sage-grouse and Silver Sage-brush Guide
- Range conditions surrounding active and inactive leks
- Telemetry study to determine important habitats (University of Alberta PhD dissertation)
- West Nile Virus investigation (University of Alberta)
- Population genetics (University of Alberta)

Looking Ahead

Implementation of the Alberta Recovery Plan will continue. The immediate plans are to complete the modelling efforts in early 2008. This activity will be followed by negotiations with GOA stakeholders to establish land use guidelines that are scientifically based using current information. Industry consultation will follow and ultimately the results will be presented to the Recovery Team for review. Plans will also be formulated for habitat restoration and reclamation in key habitat areas. Due to critically low population of greater sage-grouse in Alberta the feasibility for augmentation of the current population through translocation from other jurisdictions is being investigated. The likelihood of successful recovery using augmentation is likely far greater than re-introduction efforts would be if the population was to become extirpated in the near future.

BURROWING OWL RECOVERY IMPLEMENTATION

Implementation Leader: **Arlen Todd**

REGION:
Prairies

TARGET SPECIES:
Burrowing Owl (*Athene cunicularia hypugaea*)

***WILDLIFE* ACT CATEGORY:**
Endangered

PROVINCIAL GENERAL STATUS:
At Risk

Background and Activities

The burrowing owl was first listed as *Threatened* under Alberta's *Wildlife Act* in 1987. This listing was upheld in 2000 following a review of the species' status. Most recently, the status was uplisted to *Endangered* in 2006. Nationally, the burrowing owl has been listed as *Endangered* since 2003. The Alberta Burrowing Owl Recovery Team was formally established in June 2001, and the recovery plan was approved by the Minister in December of 2005. The goal is to increase the population to viable, naturally self-sustaining levels, with the species well distributed throughout its recent (1993) range. Specific recovery strategies and progress made toward each are described below.

Habitat Conservation and Management, and Related Research

- A multi-year project to determine large-scale habitat selection of burrowing owls was completed as a prelude to identification of essential habitats throughout burrowing owl range in Canada.
- A Beneficial Management Practice document (developed by MULTISAR) was reviewed and adopted for the entire range of burrowing owls in Alberta.
- Several Stewardship programs (both provincial and smaller scales, e.g., Operation Grassland Community, MULTISAR, Nature Conservancy of Canada) continued to emphasize habitat conservation and restoration for burrowing owls.
- Selected Recovery Team members participated in the ongoing review by Sustainable Resource Development (SRD) of setback distances and activity periods for sensitive wildlife species (including burrowing owl) in the Prairies Management Area.

Population Conservation and Management

- Direct inventory was completed on long-standing trend blocks in the Eastern Irrigation District, east and south of Brooks, and reports were prepared.
- Habitat Suitability Indices were developed through the MULTISAR project and are being used as an indirect means of determining where burrowing owls should be, and might be. There are plans to make these available on the SRD website.
- The program encouraged data sharing, including pre-development survey information from industry.

Public Education and Awareness

- Presentations and occasional media interviews which focused in whole or in part on burrowing owl recovery were given each year to a variety of groups, including the following: schools; landholders; SRD's Species at Risk staff; and SRD managers and staff.
- The recovery program and plan were promoted to stakeholders, land managers and the public at all possible opportunities.
- Established stewardship programs continued education and awareness initiatives on burrowing owls and other grassland species (e.g., the MULTISAR Landholder guide *At Home on the Range;* school talks by Operation Grassland Community).

Research

- A multi-year, multi-party project to evaluate the effects of energy sector development on burrowing owls was recently initiated. The project is determining and comparing burrowing owl activities, activity patterns and habitat use (including nesting and foraging, home range size and shifts) in disturbed and undisturbed areas in both Alberta and Saskatchewan. Results of the project are contributing to the objective evaluation of management measures such as setback distances and development thresholds, and will aid in the understanding of cumulative effects of grassland developments on the burrowing owl.

Plan Management and Administration

- The Recovery Team held one meeting in year 4. A total of 12 meetings of the Alberta Burrowing Owl Recovery Team have been held since its inception.
- Burrowing Owl data were entered into several key databases, including the Fisheries and Wildlife Management Information System.

Looking Ahead

At the time of printing this report, the existing recovery plan was late in the fourth year of its five-year span. Accordingly, in-depth review and evaluation of the plan has begun, with a view to preparing a new plan for 2009-2014. That plan review and renewal work will continue to intensify in the year ahead, and culminate in a new plan that will reflect and embody the upgraded 2006 status listing of *Endangered*. Key activities in habitat conservation and management, public education and awareness, and research will also continue in the year ahead. Efforts will be made to enhance partnerships and progress with funding and implementation of management trials for restoration of actual and potential habitats.

COOPERATING AGENCIES

Alberta Conservation Association, Science Horizons, Interdepartmental Recovery Fund, Alberta Sport, Recreation, Parks, and Wildlife Foundation, Endangered Species Recovery Fund, MULTISAR, Operation Grassland Community, Prairie Farm Rehabilitation Administration, University of Alberta, and all agencies associated with the Alberta Burrowing Owl Recovery Team

For more information contact:

Arlen Todd (*see page 7*)

Related Species at Risk report: No. 116

Alberta Species at Risk Recovery Plan: No. 6

WESTERN SPIDERWORT MAINTENANCE AND RECOVERY PLAN IMPLEMENTATION

Implementation Leader: **Joel Nicholson**

REGION:
Prairies

TARGET SPECIES:
Western Spiderwort
(*Tradescantia occidentalis*)

***WILDLIFE ACT* CATEGORY:**
Endangered

PROVINCIAL GENERAL STATUS:
At Risk

Background and Activities

In August 2001, the Endangered Species Conservation Committee (ESCC) recommended that western spiderwort be listed as *Endangered* because of its very small number of populations (one confirmed), small area of occurrence, small number of individuals, and isolation from populations in the US and Saskatchewan. The species was listed in 2007. Western spiderwort is associated with active or partially stabilized sand dunes. In Alberta the species is restricted to one location of approximately 2.2 km^2 in southeastern Alberta. This population fluctuates from year to year as a result of various environmental factors.

At the direction of the Minister of Sustainable Resource Development, the Alberta Western Spiderwort Recovery Team was formed in 2003, and produced the Maintenance and Recovery Plan for Western Spiderwort in Alberta 2005 – 2010. The focus of the recovery plan is to conserve the existing populations and habitat for western spiderwort.

Inventory and Monitoring

- In 2005, a population inventory was undertaken in order to provide additional population data on the Alberta site. In this inventory, the population was estimated to consist of approximately 28 400 individuals (56 800 stems), which is considerably larger than the previous estimate of 7 700 individuals. Browsing by ungulates did not appear to have a significant impact on the population as many browsed stems redeveloped reproductive structures.
- The patches of spiderwort found in the 2005 survey were considerably larger and more numerous than those found in previous years. The large increase in numbers reported may be due in part to an increase in population number or may be a reflection of a more detailed search of the area.
- Research into demography and genetic diversity of western spiderwort in Canada has been completed by a graduate student from the University of Saskatchewan. This project investigated intra- and inter-population genetic diversity. Relatively low levels of intra-population variation were observed in Saskatchewan and Alberta, whereas higher levels were found in Manitoba. Levels of inter-population diversity were low to moderate depending on primer combination used, indicating that populations are isolated within each province.

A population inventory was conducted in the summer of 2007 as well. This was accomplished through the Adopt-a-Plant program (see page 25). A report is currently in preparation and will provide additional population information for the recovery process.

Stewardship Activities

- Landowners and leaseholders have been involved in the recovery team process and continue to manage for sustainable grazing of native grassland habitats.
- Activities also include invasive species monitoring through the Adopt-a-Plant program. Volunteers confirmed the presence of some new invasive species after a tip from a local landowner, and did undertake some pulling of exotic invasive species in spiderwort habitats in 2007.
- Department staff continue to undertake management practices aimed at minimizing the impact of industrial development on species at risk. Rare plant industrial guidelines have been drafted and are operational for use in southern Alberta in order to effectively conserve populations of plant species at risk such as western spiderwort.
- Ongoing contact with landowners and leaseholders will continue to facilitate a high level of stewardship of western spiderwort habitat.

Looking Ahead

- Placement of protective reservations on Crown lands as recommended in the recovery plans is underway and will be continued.
- Longer term conservation plans will be pursued with landholders in order to ensure compatible management of important habitats.
- Spiderwort inventories need to be conducted frequently to monitor changes in population number. Standardized monitoring techniques will be employed. In addition, information on the effects of grazing and precipitation and on habitat requirements must also be acquired in future studies.

COOPERATING AGENCIES

Adopt-a-Plant Alberta, University of Saskatchewan, and all agencies associated with the Alberta Western Spiderwort Recovery Team

For more information contact:

Joel Nicholson (*see page 7*)

Related Species at Risk report: No.102

Alberta Species at Risk Recovery Plan: No.9

PIPING PLOVER RECOVERY IMPLEMENTATION

Implementation Leader: **Dave Prescott**

REGION:
Prairie

TARGET SPECIES:
Piping Plover (*Charadrius melodus*)

***WILDLIFE* ACT CATEGORY:**
Endangered

PROVINCIAL GENERAL STATUS:
At Risk

Background and Activities

The piping plover has been designated *Endangered* in Alberta since 2000. A multi-agency recovery team was since formed, and implementation of the inaugural recovery plan (*Alberta Piping Plover Recovery Plan 2002-2004*) ensued. After expiry of that plan, a revised plan (*Alberta Piping Plover Recovery Plan 2005-2010*) was approved for implementation by the Minister in 2005. The goal of both plans was similar; to achieve

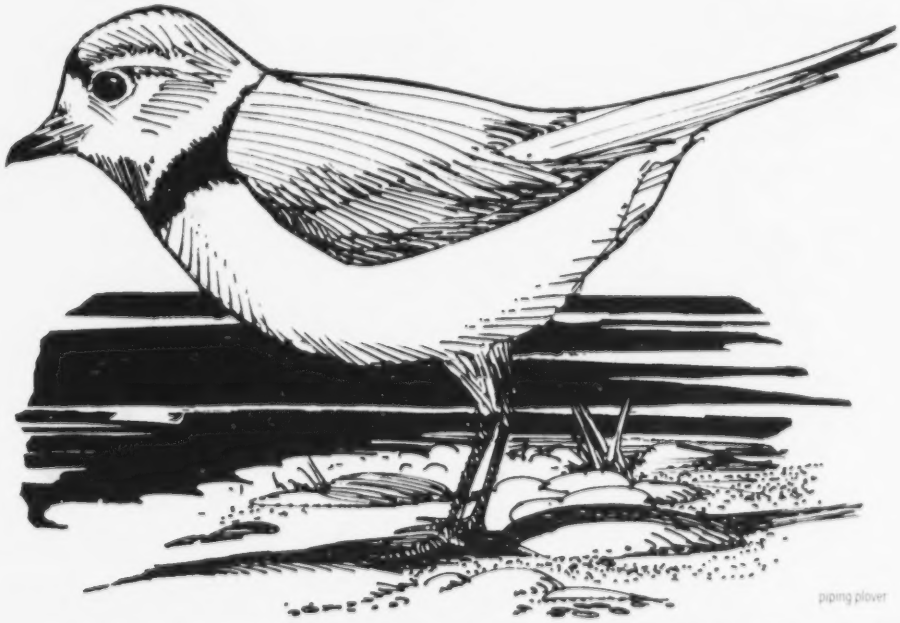
1. a well-distributed population of 300 breeding adults in the province;
2. reproductive success of at least 1.25 chicks/pair/year; and
3. no net loss of breeding habitat and nests in Alberta. These goals were to be achieved primarily through the protection of nests and habitat. The plans stressed that a cooperative approach to conservation was necessary to recover piping plover populations in the province.

Habitat Management and Protection

- A major initiative since the beginning of formal plover recovery efforts in 2002 has been the implementation of cooperative agreements with landowners. To date, approximately 17 cooperative projects on 11 lakes have been completed. These are usually fencing projects (permanent or temporary fences) designed to reduce or eliminate cattle damage to beaches during the nesting season. Occasionally, off-site watering is provided for cattle.
- Protective reservations, which alert industrial developers and other interests to the presence of an *Endangered* species have been placed, or have been applied for, on almost all Crown-owned plover habitat in the province. These reservations have been instrumental in preventing inadvertent degradation of plover habitat in the province. Further, through the federal *Species at Risk Act* (*SARA*), 43 quarter-sections of land on 13 lakes have been declared to be "critical habitat," and are protected against destruction.

Productivity Enhancement

- Between 2004 and 2007, a total of 426 predator exclosures were placed on piping plover nests, which represents 89% of the total nests discovered during the period. Success of these nests exceeded 90%, which is well over double what would have been achieved for unprotected nests.
- Removal of stick nests in wooded areas around key nesting lakes occurred during three winters. The removal of these nesting structures is an attempt to reduce the presence of raptorial birds around nesting lakes during the summer.
- Electrified mesh fences, designed specifically to deter mammalian predators from nesting beaches, were used on two lakes. Finally, a motion-detecting camera was deployed on Akasu Lake to monitor activities of predators around plover nests.



piping plover

COOPERATING AGENCIES

Alberta Conservation Association, Alberta Employment, Immigration and Industry, Alberta Human Resources, Alberta Sport, Recreation, Parks and Wildlife Foundation, Alberta Tourism, Parks and Recreation, Canadian Wildlife Service, ConocoPhillips Canada; Endangered Species Recovery Fund, Environment Canada Habitat Stewardship Program, Human Resources and Skills Development Canada, Mountain Equipment Co-op, Parks Canada, Special Areas Board, TD Friends of the Environment, and all agencies associated with the Alberta Piping Plover Recovery Team

For more information contact:

Dave Prescott (*see page 7*)

Related Species at Risk report: No. 8, 99

Alberta Species at Risk Recovery Plan: No. 10

Information and Education

- Interpretive signage, and signs alerting ATV users to the presence of sensitive nesting areas have been erected on most lakes where recreational use of beaches conflicts with plover nesting.
- Presentations on plovers and their management were made to a wide variety of interest groups by staff from the Fish and Wildlife Division and the Alberta Conservation Association.
- Personal visits (often on an annual basis) are made to most landowners, leaseholders and cottagers that have land adjacent to plover habitat, to ensure that they are informed and agreeable with management activities.

Research

- Annual surveys for plovers are conducted on more than 30 lakes each year. These surveys are intended to monitor the occurrence of plovers in different years so that management can be directed toward areas with the highest concentrations of birds. Total counts were 134 birds in 2004, 206 in 2005, and 273 in 2007. In 2006, Alberta participated in the International Piping Plover Census, which has been conducted across North America every five years since 1991. A total of 32 staff and volunteers visited 71 lakes, and counted 274 birds on 25 basins. These surveys indicate that the population is now rebounding from lows recorded in 2004, and are just below target recovery levels.
- Coloured leg bands are placed on piping plover chicks to monitor movements to and from the wintering grounds. A total of 238 plovers were banded during the reporting period.

Looking Ahead

Populations are currently just short of the recovery target of 300 individuals. Intensive management activities, particularly the protection of nests and habitats, therefore appear to be having a positive effect on plover populations in the province.

Once target populations have been achieved, ongoing management will be needed to sustain plover populations in the province. This is because there are continuing threats to plover habitat from industrial development, and because plover populations move around the province and are often found in areas where no previous management or stewardship has been completed. Most importantly, unnaturally high levels of predation on nests means that any reduction in the predator exclosure program will result in lower overall nest success in the province. Future declines in population size would be a predictable outcome of reduced efforts to maximize productivity.

For the duration of the current recovery plan, we will continue to emphasize habitat protection, productivity enhancement, and information and extension activities to recover plover populations. We will also continue to work with federal counterparts to ensure that recovery activities are coordinated across jurisdictions. A new recovery plan will be drafted in 2010, to guide the management of plovers for an additional five-year period.

SOAPWEED AND YUCCA MOTH MAINTENANCE AND RECOVERY PLAN IMPLEMENTATION

Project Supervisor: **Joel Nicholson**

Background and Activities

Soapweed (*Yucca glauca*), commonly known as yucca, is an arid-region perennial that grows as a single rosette or cluster of rosettes of long, narrow, spear-shaped leaves. A tall flowering stalk grows from the centre of each rosette and produces large, white flowers. The yucca moth (*Tegeticula yuccasella*) is a small, white, nocturnal moth. Soapweed and yucca moths have an obligate mutualistic relationship such that neither species can survive and sexually reproduce without the other. Moth larvae feed only on soapweed seeds and soapweed can only produce seeds if pollinated by yucca moths.

In February 2003, the Minister of Sustainable Resource Development approved the listing of both soapweed and yucca moth as *Endangered* in Alberta. The soapweed was listed in 2007. These designations were based on the Alberta population of soapweed occurring at only two sites and occurring over a small area. Yucca moths appear to be near extirpation in one of the two Alberta populations (Pinhorn population) and both populations are isolated from moth populations in the United States.

The goals of the recovery plan are to:

1. maintain the existing habitat and distribution of soapweed and yucca moth in Alberta;
2. maintain naturally, self-sustaining populations of soapweed and yucca moth at the Onefour site; and
3. increase the reproductive capacity of soapweed and yucca moth populations at the Pinhorn site.

It is expected that implementation of activities to conserve soapweed and yucca moth, combined with stakeholder cooperation and commitment, will allow for the long-term persistence of soapweed and yucca moths in Alberta.

Inventory and Monitoring

The Fish and Wildlife Division completed an inventory of the Pinhorn site soapweed and yucca moth population in the fall of 2004. During the survey, clones (collections of soapweed rosettes separated by less than 15 cm of open soil) were counted. Evidence of previous flowering, number of inflorescences (flowering stalks), number of dead rosettes, number of live rosettes, number of fruit per clone, and number of emergence holes in fruit were also recorded. A much larger population of yucca moth was found at the Pinhorn site than previously reported, although this may be a result of varying methods used. Evidence of fruiting and larval emergence confirms that both sexual reproduction of soapweed and reproduction of yucca moth are occurring at the Pinhorn site, but at a very low rate, despite a substantial amount of flowering among clones. More details are available in the Alberta Species at Risk Program Report No. 111.

Additional inventory of the Onefour soapweed population was completed by Agriculture and Agri-food Canada in summer 2007. The accompanying report is in preparation but will provide an updated population estimate for this site, as well as additional information on the spatial extent of this population.

Yucca moth inventory was also undertaken in 2007 at the Onefour site. Agriculture and Agri-food Canada initiated this population assessment of yucca moth as per their responsibility to management and/or recovery of Species at Risk on federal land. In conjunction with this work, preliminary data were gathered for the five-spotted bogus yucca moth (*Prodoxus quinquepunctellus*) during the flowering season, and also for the non-pollinating yucca moth (*T. corruptrix*) during fruiting. The key objectives of this project were:

1) to develop standardized methods for assessing the stability of yucca moth populations at Onefour over time and
2) to determine the current population status relative to that of the past. An initial 2007 flowering survey exhibited a low level of clonal flowering and a low moth density.

Although overall fruit production was low because of naturally occurring events early in the flowering season, it was still almost five times greater than the lowest season on record. Further, yucca moth recruitment per fruit was similar to previous years on record at Onefour.

Stewardship Activities

Critical habitat has been identified. Industrial guidelines are being used to minimize impacts from other land uses on the soapweed and yucca moth populations in Alberta.

Consultation with the land managers at the Onefour site (Agriculture and Agri-food Canada) related to critical habitat designation has occurred. Ongoing stewardship facilitated by beneficial management practices will be ongoing at both soapweed sites.

Looking Ahead

Fencing of selected plants at the Pinhorn site and subsequent translocation will be pursued as an MSc program with an Alberta university. This project will commence once a suitable student is found to undertake this recovery project and evaluate its success.

REGION:
Prairie

TARGET SPECIES:
Soapweed (*Yucca glauca*), Yucca moth (*Tegeticula yuccasella*)

***WILDLIFE ACT* CATEGORIES:**
Endangered and None

PROVINCIAL GENERAL STATUS:
At Risk

COOPERATING AGENCIES

Agriculture and Agri-food Canada, and all agencies associated with the Alberta Soapweed and Yucca Moth Recovery Team

For more information contact:

Joel Nicholson (*see page 7*)

Related Species at Risk report: No. 111
Alberta Species at Risk Recovery Plan: No. 11

TRUMPETER SWAN RECOVERY IMPLEMENTATION

Implementation Leader: **Mark Heckbert**

REGION:
Smoky, Peace and scattered elsewhere

TARGET SPECIES:
Trumpeter Swan (*Cygnus buccinator*)

***WILDLIFE ACT* CATEGORY:**
Threatened

PROVINCIAL GENERAL STATUS:
At Risk

Background and Activities

In June 2001, the Endangered Species Conservation Committee (ESCC) recommended that the trumpeter swan be listed as *Threatened* because of its very small population and concerns over a critical shortage of wintering habitat. The Minister of Sustainable Resource Development agreed with this recommendation, and along with the listing, endorsed the Initial Conservation Action Statement that formally initiated trumpeter swan recovery actions, including the formation of the Alberta Trumpeter Swan Recovery Team. The team produced the *Alberta Trumpeter Swan Recovery Plan 2005 – 2010*. The focus of the recovery plan is to increase the existing populations through habitat protection and a reduction in human-caused mortality.

Habitat Protection and Management

- Alberta Conservation Association (ACA) completed a review of land-use issues around key trumpeter swan staging wetlands near Cochrane; they then undertook efforts to create an offsite watering location and pasture-fencing initiatives to improve water quality and riparian vegetation health.
- SRD Staff have implemented land-use guidelines for trumpeter swans on breeding and staging wetlands located on public land.
- Fish and Wildlife Division (FWD) staff have commenced the process to place protective reservations on public lands located in and near all known breeding wetlands.
- FWD staff commenced formal discussions with the County of Grande Prairie to develop land-use guidelines for trumpeter swans on private lands and to formalize a referral system for industrial developments.
- FWD staff cooperated with Canadian National Railway and Ducks Unlimited Canada to establish a permanent water control structure on a trumpeter swan breeding wetland near Grande Prairie.

Population Conservation and Management

- Expanded surveys for trumpeter swans were carried out in 2005.
- Power line strike locations were identified in the County of Grande Prairie. Negotiation efforts with ATCO Electric to mitigate specific locations with high probability of repeated collisions through power line burial were unsuccessful.
- Line markers were placed along 800 m of a power line located on Flyingshot Marsh just west of Grande Prairie, which is located near a breeding wetland and is used periodically by non-breeding swans.
- FWD staff have continued to monitor power line strike locations and have maintained the information in a database.
- Tourism, Parks and Recreation staff implemented effective public activity closures on breeding lakes within Provincial Parks and Protected Areas.

Research and Monitoring

- Annual surveys of trumpeter swans were completed in the Beaver Hills.
- The Alberta portion of the 2005 international breeding trumpeter swan survey was completed in order to estimate population size and evaluate the success of recovery actions.
- The geographic extent of the Alberta population surveys for breeding trumpeter swans was expanded to search for new breeding territory.

Information and Education

- Promotion of the recovery plan implementation was completed through public tours and provision of a large poster at the Grande Prairie Swan Festival.
- Trumpeter swan postcards were printed and distributed to the public at special events and school visits.

Recovery Plan Administration

- Trumpeter swan data was entered into the FWMIS database.

Looking Ahead

- Sustainable Resource Development (SRD) staff have gathered information about possible modifications to the current land-use guidelines and will continue these efforts in 2008.
- FWD will continue to work with ATCO Electric to try to mitigate known collision locations.
- The recovery plan will be reviewed and reviewed and updated in 2010.

COOPERATING AGENCIES

ATCO Electric, Tourism, Parks and Recreation, and all agencies associated with the Alberta Trumpeter Swan Recovery Team

For more information contact:

Mark Heckbert
(Mark.Heckbert@gov.ab.ca)

Alberta Species at Risk Recovery Plan: No. 12

SHORTJAW CISCO RECOVERY IMPLEMENTATION

Implementation Leader: **Isabelle Girard**

REGION:
Waterways

TARGET SPECIES:
Shortjaw Cisco (*Coregonus zenithicus*)

***WILDLIFE* ACT CATEGORY:**
Threatened

PROVINCIAL GENERAL STATUS:
At Risk

Background and Activities

The shortjaw cisco was approved as a *Threatened* species in Alberta in 2003, and was listed in 2007. It was nationally listed as *Threatened* in 1987. In Alberta, this designation is based on the species' occurrence in only one lake (Barrow Lake) and its isolation from other populations.

In 2005, the Minister of Sustainable Resource Development (SRD) formed the Alberta Shortjaw Cisco Recovery Team with representation from Alberta Sustainable Resource Development's Fish and Wildlife, and Lands divisions, Royal Alberta Museum, Mikisew Sport Fishing, and First Nations representation from the Métis Association, Mikisew Cree First Nation and the Athabasca Chipewyan First Nation. In January 2007, the Minister approved the *Alberta Shortjaw Cisco Recovery Plan 2006-2011*.

The goal of this recovery plan is to maintain a self-sustaining population of shortjaw cisco in Barrow Lake, Alberta, over the long-term. Recommended actions include:

1. protection of the shortjaw cisco population against direct and indirect effects of domestic fishing and sport fishing;
2. prevention of declines or losses in habitat quantity and quality associated with anthropogenic activities;
3. monitoring of the population using indirect methods; and
4. increasing public awareness about this species and its conservation requirements. This update summarizes activities undertaken in the first year of implementation of the *Alberta Shortjaw Cisco Recovery Plan*.

Population Conservation and Management

- Collaboration is underway with Mikisew Sport Fishing to monitor angling pressure on Barrow Lake during summer 2008, as a means of indirectly monitoring the shortjaw cisco population and its potential threats.
- SRD has proposed a regulation change (i.e., one walleye over 43 cm and one northern pike over 63 cm, with a closure from April 1 – May 17) to preserve the ecological integrity of Barrow Lake.
- Discussions with SRD enforcement have been initiated to increase the surveillance of Barrow Lake.

Habitat Conservation and Management

- Discussions with SRD Lands Division have been initiated to put a protective reservation on Barrow Lake to ensure land use activities are compatible with conservation of shortjaw cisco.

Outreach and Information

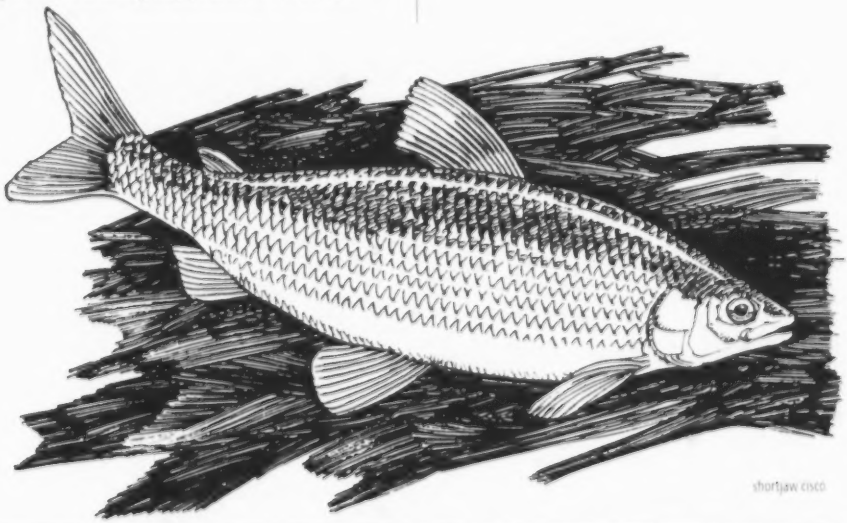
- Initial steps have been taken to produce a brochure on shortjaw cisco that will be made available to the public.
- The *Alberta Shortjaw Cisco Recovery Plan* was discussed as part of a Fish and Wildlife public meeting in Fort McMurray in January 2008, with other meetings to be planned for the near future.

Research needs and Resource Acquisition

- An application for funds was submitted by SRD and the Royal Alberta Museum to the Environment Canada Habitat Stewardship Program. The aim of the proposed project is to test a non-lethal direct monitoring technique on shortjaw cisco in Barrow Lake.

Looking Ahead

- All the above mentioned initiatives mentioned are scheduled for completion in 2008-2009.



shortjaw cisco

COOPERATING AGENCIES

Mikisew Sport Fishing and the Royal Alberta Museum

For more information contact:

Isabelle Girard
(Isabelle.Girard@gov.ab.ca)

Alberta Species at Risk Recovery Plan: No. 13

SWIFT FOX RECOVERY PLAN IMPLEMENTATION

Implementation Leader: **Joel Nicholson**

REGION:
Prairies

TARGET SPECIES:
Swift Fox (*Vulpes velox*)

***WILDLIFE ACT* CATEGORY:**
Endangered

PROVINCIAL GENERAL STATUS:
At Risk

Background and Activities

Swift foxes (*Vulpes velox*) are canids identified by their small size (2 kg to 3 kg), long black-tipped bushy tails, and by black facial spots on each side of their muzzle. Historically, large populations of swift foxes ranged across the Canadian Prairies. Rapid declines in abundance of the swift fox began in the late 1800s as foxes were trapped or eliminated during predator control programs. The last sighting of a swift fox in Alberta was in 1938 near Manyberries. Beginning in 1983, captive-raised and wild-born swift foxes from the United States were reintroduced into southern Alberta and Saskatchewan. This reintroduction program led to the establishment of a small population of foxes in southern Alberta and Saskatchewan, which expanded over the border into Montana, USA.

The swift fox was designated *Endangered* in Alberta in 2000, and the Swift Fox Recovery Team was initiated by the Minister of Sustainable Resource Development. The team's long term goal for the swift fox in Alberta is to establish a well-distributed, healthy, and self-sustaining viable population within its remaining historic range in Alberta within 20 years. In December 2007, the Minister of SRD approved The *Alberta Swift Fox Recovery Plan 2006-2010*, which outlines activities related to swift fox conservation for 2006-2001.

Inventory and Monitoring

A major population monitoring initiative occurred in Alberta, Saskatchewan and Montana with the 2005-2006 population census. Results of this census were encouraging as population connectivity improved and swift fox numbers and densities in Canada were similar to the high levels documented in 2001, which indicates population stability. Additionally, Montana numbers increased significantly for a combined 2006 population estimate of 1163 foxes. With 100% of foxes in this census being wild-born, the reintroduction program shows long-term success.

Stewardship Activities

The MULTISAR program continues to be one of the main delivery mechanisms for species at risk conservation and stewardship with landholders in southern Alberta. MULTISAR conservation plans are underway on large ranches that contain significant swift fox habitat. An active swift fox den was located on one project co-operator's ranch as part of the wildlife inventory work conducted for plan production. Additionally, department staff continue to work toward minimizing the impact of industrial activities on swift fox populations. Utilization of guidelines for mitigating development as well as pre-industrial wildlife survey work is ongoing.

Looking Ahead

Population and habitat modelling work using data from the 2005-2006 census is underway and largely complete. The provincial Swift Fox Recovery Team and the national Swift Fox Recovery Team will continue to work cooperatively to determine the next steps toward swift fox recovery. Pursuit of other conservation initiatives identified in the recovery plan will be ongoing.

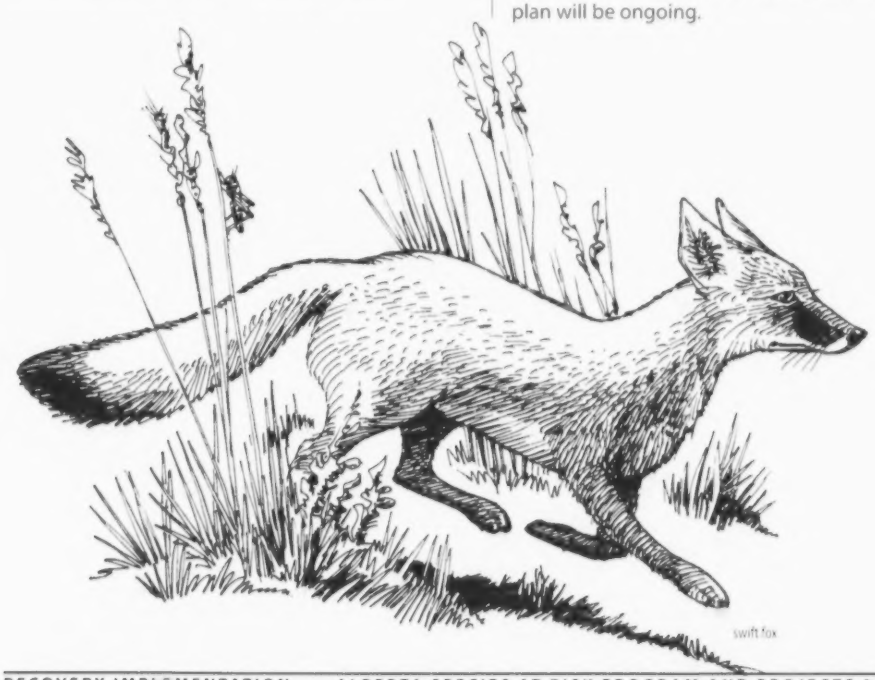
COOPERATING AGENCIES

Agriculture and Agri-Food Canada, Alberta Conservation Association, Calgary Zoo, Environment Canada, Government of Alberta Innovation Program, Montana Fish, Wildlife, and Parks, Parks Canada, Saskatchewan Environment, Wildlife Preservation Canada, World Wildlife Fund, MULTISAR, and all agencies associated with the Alberta Swift Fox Recovery Tea

For more information contact:

Joel Nicholson (*see page 7*)

Alberta Species at Risk Recovery Plan: No. 14



swift fox

WESTERN SILVERY MINNOW RECOVERY IMPLEMENTATION

Implementation Leader: **Terry Clayton**

REGION:
Prairies

TARGET SPECIES:
Western Silvery Minnow
(*Hybognathus argyritis*)

***WILDLIFE* ACT CATEGORY:**
Threatened

PROVINCIAL GENERAL STATUS:
At Risk

Background and Activities

The western silvery minnow is a *Threatened* species in Alberta, the only jurisdiction in which it occurs in Canada. In 2005, the Minister of Sustainable Resource Development (SRD) formed a multi-stakeholder recovery team. In December 2007 the Endangered Species Conservation Committee reviewed *The Alberta Western Silvery Minnow Recovery Plan 2007-2012*.

There is no evidence to date that suggests that the Milk River population of western silvery minnow has suffered a decline or that the range has been significantly reduced. As such, the recovery goal is "to protect and maintain a self-sustaining population of western silvery minnow within its current range with the Milk River in Canada."

Information and Education

- Interpretive signage was developed for Milk River species at risk, including western silvery minnow, and displayed at Writing-on-Stone Provincial Park.
- Fact sheets on the western silvery minnow were developed by a Recovery Team partner, the Canada Department of Fisheries and Oceans (DFO).
- A newspaper article on western silvery minnow and the recovery plan appeared in the Lethbridge Herald.

Monitoring and Research

While the recovery plan was being written and reviewed, a number of data gaps were identified. Staff of SRD and DFO have undertaken a number of activities related to recovery of the western silvery minnow.

- In June 2004, an early summer habitat survey was conducted on the lower Milk River to identify possible spawning and early rearing habitat.
- Fall fish and habitat surveys were conducted opportunistically at selected sites on the lower Milk River in October and November 2004 to sample for western silvery minnow presence in potential overwintering habitat.
- Fall aerial photography was completed in October and November 2004 to document key macro-habitat sections for the entire Milk and North Milk rivers. This survey geo-referenced and mapped key habitat features for evaluation. Limited habitat analysis has also been conducted. Field collections were made in the lower Milk River from June to September 2005. Relative abundance measures were used to compare habitat use, and biological data were collected on all fish species, including western silvery minnow.
- DFO sampled fish populations in the Milk River several times between 2005 and 2007. New data were collected on the diet, population age structure, population size structure, juvenile and adult habitat use, and distribution range of the western silvery minnow in the Milk River.
- All fisheries data have been entered into the provincial Fisheries Management Information System.

COOPERATING AGENCIES

Alberta Conservation Association, Canada Department of Fisheries and Oceans, Environment Canada Habitat Stewardship Program, Freshwater Institute in Winnipeg, MULTISAR, and all agencies associated with the Alberta Milk River Fish Recovery Team

For more information contact:

Terry Clayton
(Terry.Clayton@gov.ab.ca)

GRIZZLY BEAR, WOODLAND CARIBOU and BISON

All costs and staffing of woodland caribou (*Rangifer tarandus caribou*), a *Threatened* species, grizzly bear (*Threatened* – pending) and bison (*Endangered*) management are currently resourced from outside the provincial Species at Risk program. More information on the management for these species can be found on the Fish and Wildlife Division website: http://srd.alberta.ca/fishwildlife/default.aspx

grizzly bear

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2007 IUCN Red List of Threatened Species
http://www.redlist.org/

Accord for the Protection of Species at Risk in Canada
http://www.speciesatrisk.gc.ca/recovery/accord_e.cfm

Alberta Conservation Association (ACA)
http://www.ab-conservation.com/

Alberta Endangered Species Conservation Committee (ESCC)
http://srd.alberta.ca/fishwildlife/escc/

Alberta Natural Heritage Information Centre (ANHIC)
http://www.cd.gov.ab.ca/preserving/parks/anhic/

Alberta Species at Risk Program
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Alberta Species at Risk Program and Projects 2000-2001
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Alberta Species at Risk Reports
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Alberta Sustainable Resource Development—Fish and Wildlife Division
http://srd.alberta.ca/fishwildlife/default.aspx

Committee on the Status of Endangered Wildlife in Canada (COSEWIC)
http://www.cosewic.gc.ca/

Map of the Natural Regions and Subregions of Alberta
http://tprc.alberta.ca/parks/heritageinfocentre/docs/nsr2005_final_letter.pdf

Previous reports of the Alberta Endangered Species Conservation Committee
http://srd.alberta.ca/fishwildlife/escc/backgrounddocuments.aspx

Species at Risk Act Public Registry
http://www.sararegistry.gc.ca/default_e.cfm

The 2005 General Status of Alberta Wild Species
http://srd.alberta.ca/fishwildlife/wildspecies/

The World Conservation Union (IUCN) Red List Criteria
http://intranet.iucn.org/webfiles/doc/SSC/RedList/RedListGuidelines.pdf

Wild Species: General Status of Species in Canada
http://www.wildspecies.ca/

definition of status ranks

General Status of Alberta Wild Species Ranks

2005 Rank	Definitions
At Risk	Any species known to be at risk after formal detailed status assessment and designation as *Endangered* or *Threatened* in Alberta.
May Be At Risk	Any species that May Be at Risk of extinction or extirpation, and is therefore a candidate for detailed risk assessment.
Sensitive	Any species that is not at risk of extinction or extirpation but may require special attention or protection to prevent it from becoming at risk.
Secure	A species that is not At Risk, May Be at Risk or Sensitive.
Undetermined	Any species for which insufficient information, knowledge or data is available to reliably evaluate its general status.
Not Assessed	Any species whose general status has not been evaluated.
Exotic/Alien	Any species that has been introduced as a result of human activities.
Extirpated/Extinct	Any species no longer thought to be present in Alberta (extirpated) or no longer believed to be present anywhere in the world (extinct).
Accidental/Vagrant	Any species occurring infrequently and unpredictably in Alberta; i.e., outside its usual range.

Alberta Species at Risk Formal Status Definitions[1]

Extinct	A species that no longer exists.
Extirpated	A species no longer existing in the wild in Alberta but occurring elsewhere in the wild.
Endangered[2]	A species facing imminent extirpation or extinction.
Threatened[2]	A species likely to become endangered if limiting factors are not reversed.
Species of Special Concern	A species of special concern because of characteristics that make it particularly sensitive to human activities or natural events.
Data Deficient	A species for which there is insufficient scientific information to support status designation.

[1] These definitions are based on those used by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

[2] *Endangered* and *Threatened* are legal designations under Alberta's *Wildlife Act*.

Other *Wildlife Act* categories referred to in this report include:

Non-game Animal	A wildlife species, as identified in the Wildlife Regulation, for which there is no hunting season. It is also illegal to possess or traffic in these species, unless permitted to do so.
Non-licence Animal	A wildlife species, as identified in the Wildlife Regulation, which can be hunted year round without a licence except in specified areas.

Committee on the Status of Endangered Wildlife in Canada

(after http://www.cosewic.gc.ca/eng/sct0/assessment_process_e.cfm#sec3)

Extinct	A wildlife species that no longer exists.
Extirpated	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered	A wildlife species facing imminent extirpation or extinction.
Threatened	A wildlife species likely to become endangered if limiting factors are not reversed.
Special Concern	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
Not at Risk	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient	A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.

list of titles in this series

All reports are available at: www.srd.alberta.ca/fishwildlife/speciesatrisk/projectreports.aspx

No. 1 | Alberta species at risk program and projects 2000-2001, by Alberta Sustainable Resource Development, Fish and Wildlife Division. (2001)

No. 2 | Survey of the peregrine falcon (*Falco peregrinus anatum*) in Alberta, by R. Corrigan. (2001)

No. 3 | Distribution and relative abundance of the shortjaw cisco (*Coregonus zenithicus*) in Alberta, by M. Steinhilber and L. Rhude. (2001)

No. 4 | Survey of the bats of central and northwestern Alberta, by M.J. Vonhof and D. Hobson. (2001)

No. 5 | 2000 survey of the Trumpeter Swan (*Cygnus buccinator*) in Alberta, by M.L. James and A. James. (2001)

No. 6 | 2000/2001 Brassy Minnow inventory at Musreau Lake and outlet, by T. Ripley. (2001)

No. 7 | Colonial nesting waterbird survey in the Northwest Boreal Region – 2000, by M. Hanneman and M. Heckbert. (2001)

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No. 9 | Survey of the Lake Sturgeon (*Acipenser fulvescens*) fishery on the South Saskatchewan River, Alberta (June-September, 2000), by L.A. Winkel. (2000)

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No. 11 | Harlequin duck monitoring in the Northern East Slopes of Alberta: 1998-2000 preliminary results, by J. Kneteman and A. Hubbs. (2000)

No. 12 | Distribution of selected small mammals in Alberta, by L. Engley and M. Norton. (2001)

No. 13 | Northern leopard frog reintroduction. Raven River - Year 2 (2000), by K. Kendell. (2001)

No. 14 | Cumulative effects of watershed disturbances on fish communities in the Kakwa and Simonette watersheds. The Northern Watershed Project. Study 3 Progress report, by T. Thera and A. Wildeman. (2001)

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No. 16 | Proposed monitoring plan for harlequin ducks in the Bow Region of Alberta, by C.M. Smith. (2001)

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No. 22 | Utilization of airphoto interpretation to locate prairie rattlesnake (*Crotalus viridis viridis*) hibernacula in the South Saskatchewan River valley, by J. Nicholson and S. Rose. (2001)

No. 23 | 2000/2001 Progress report on caribou research in west central Alberta, by T. Szkorupa. (2001)

No. 24 | Census of swift fox (*Vulpes velox*) in Canada and Northern Montana: 2000-2001, by A. Moehrenschlager and C. Moehrenschlager. (2001)

No. 25 | Population estimate and habitat associations of the long-billed curlew in Alberta, by E.J. Saunders. (2001)

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No. 29 | A survey of short-horned lizard (*Phrynosoma hernandesi hernandesi*) populations in Alberta, by J. James. (2001)

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No. 35 | Protocol for monitoring long-toed salamander (*Ambystoma macrodactylum*) populations in Alberta, by T. Pretzlaw, M. Huynh, L. Takats and L. Wilkinson. (2002)

No. 36 | Long-toed salamander (*Ambystoma macrodactylum*) monitoring study in Alberta: summary report 1998-2001, by M. Huynh, L. Takats and L. Wilkinson. (2002)

No. 37 | Mountain plover habitat and population surveys in Alberta, 2001, by C. Wershler and C. Wallis. (2002)

No. 38 | A census and recommendations for management for western blue flag (*Iris missouriensis*) in Alberta, by R. Ernst. (2002)

No. 39 | Columbian mountain amphibian surveys, 2001, by D. Paton. (2002)

No. 40 | Management and recovery strategies for the Lethbridge population of the prairie rattlesnake, by R. Ernst. (2002)

No. 41 | Western (*Aechmophorus occidentalis*) and eared (*Podiceps nigricollis*) grebes of central Alberta: inventory, survey techniques and management concerns, by S. Hanus, H. Wollis and L. Wilkinson. (2002)

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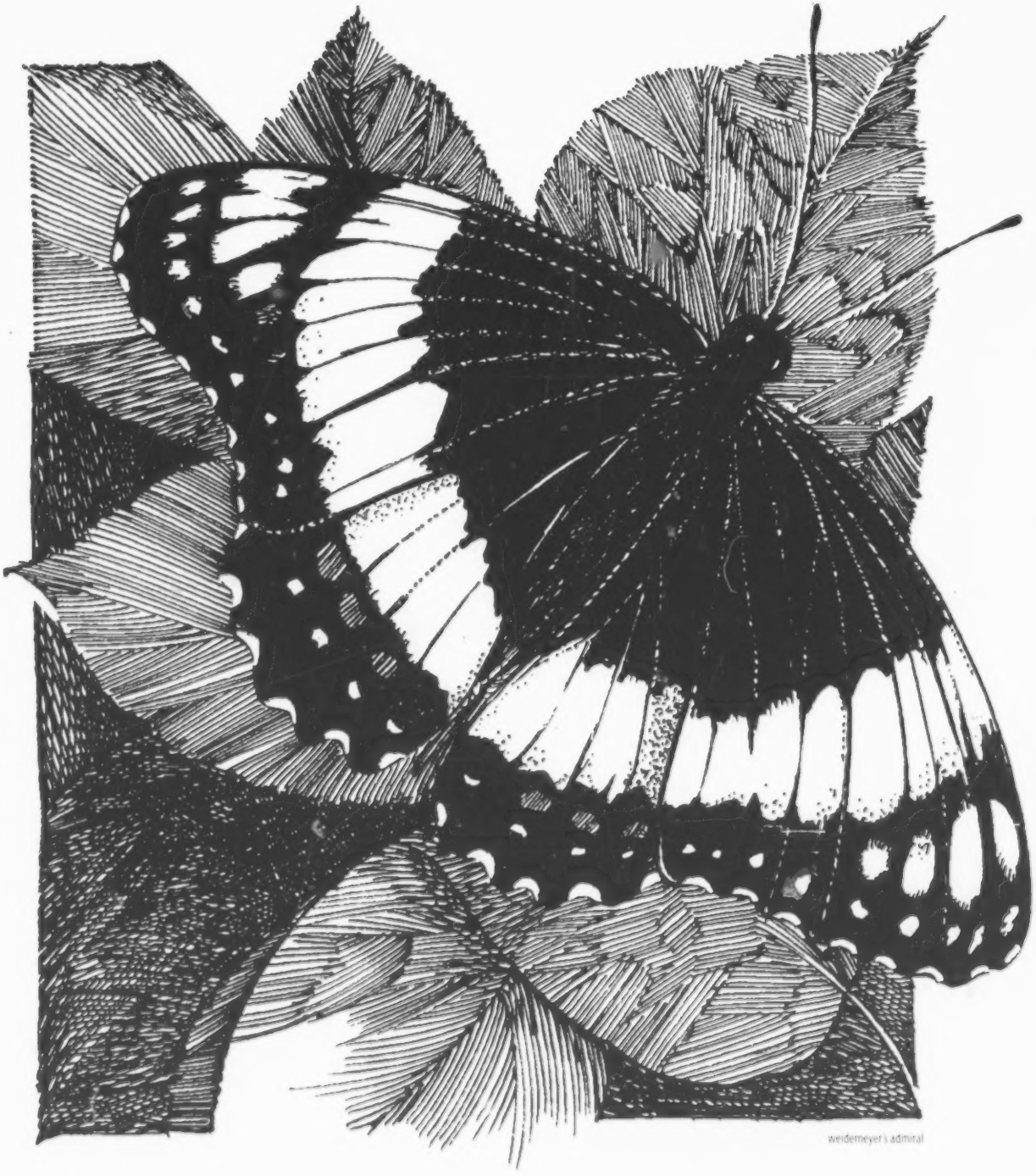

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Alberta Species at Risk

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